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U. S. EPA, REGION V  
SWB — PMS


RCRA  
PART B  
PERMIT APPLICATION  
FOR  
THE UNIVERSITY OF CHICAGO

US EPA ID # ILD005421136  
IEPA PERMIT NO. 0316410001

5801 South Ellis Avenue  
Chicago, Illinois 60637

November 8, 1988

COPY 2

<b>END COMPLETED DATE TO:</b> The Appropriate State or Regional Office.	<b>United States Environmental Protection Agency RCRA SUBTITLE C SITE IDENTIFICATION FORM</b>		
<b>1. Reason for Submittal</b>  MARK ALL BOX(ES) THAT APPLY	<b>Reason for Submittal:</b> <input type="checkbox"/> To provide an Initial Notification (first time submitting site identification information / to obtain an EPA ID number for this location) <input checked="" type="checkbox"/> To provide a Subsequent Notification (to update site identification information for this location) <input type="checkbox"/> As a component of a First RCRA Hazardous Waste Part A Permit Application <input type="checkbox"/> As a component of a Revised RCRA Hazardous Waste Part A Permit Application (Amendment # _____) <input type="checkbox"/> As a component of the Hazardous Waste Report (If marked, see sub-bullet below) <input type="checkbox"/> Site was a TSD facility and/or generator of $\geq 1,000$ kg of hazardous waste, $> 1$ kg of acute hazardous waste, or $> 100$ kg of acute hazardous waste spill cleanup in one or more months of the report year (or State equivalent LQG regulations)		
<b>2. Site EPA ID Number</b>	<b>EPA ID Number</b>   I   L   D   0   0   5   4   2   1   1   3   6		
<b>3. Site Name</b>	<b>Name:</b> University of Chicago		
<b>4. Site Location Information</b>	<b>Street Address:</b> 6041 S. Blackstone Avenue <b>City, Town, or Village:</b> Chicago <b>County:</b> Cook <b>State:</b> Illinois <b>Country:</b> USA <b>Zip Code:</b> 60637		
<b>5. Site Land Type</b>	<input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other		
<b>6. NAICS Code(s) for the Site (at least 5-digit codes)</b>	A.   6   1   1   3   1   0        C.                       B.   6   2   2   1   1   0        D.		
<b>7. Site Mailing Address</b>	<b>Street or P.O. Box:</b> 6054 S. Drexel Avenue - Suite 219 <b>City, Town, or Village:</b> Chicago <b>State:</b> Illinois <b>Country:</b> USA <b>Zip Code:</b> 60637		
<b>8. Site Contact Person</b>	<b>First Name:</b> Steve <b>MI:</b> <b>Last:</b> Beaudoin <b>Title:</b> Director, Environmental Health & Safety <b>Street or P.O. Box:</b> 6054 S. Drexel Avenue - Suite 219 <b>City, Town or Village:</b> Chicago <b>State:</b> Illinois <b>Country:</b> USA <b>Zip Code:</b> 60637 <b>Email:</b> sbeaudoi@uchicago.edu <b>Phone:</b> (773) 702-9999 <b>Ext.:</b> <b>Fax:</b> (773) 702-6546		
<b>9. Legal Owner and Operator of the Site</b>	<b>A. Name of Site's Legal Owner:</b> University of Chicago <b>Date Became Owner:</b> 1/1/1890 <b>Owner Type:</b> <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other <b>Street or P.O. Box:</b> 6054 S. Drexel Avenue - Suite 219 <b>City, Town, or Village:</b> Chicago <b>Phone:</b> (773) 702-9999 <b>State:</b> Illinois <b>Country:</b> USA <b>Zip Code:</b> 60637 <b>B. Name of Site's Operator:</b> Same as Owner <b>Date Became Operator:</b> 7/15/1991 <b>Operator Type:</b> <input checked="" type="checkbox"/> Private <input type="checkbox"/> County <input type="checkbox"/> District <input type="checkbox"/> Federal <input type="checkbox"/> Tribal <input type="checkbox"/> Municipal <input type="checkbox"/> State <input type="checkbox"/> Other		

## Type of Regulated Waste Activity (at your site)

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

## A. Hazardous Waste Activities; Complete all parts 1-7.

Y ☒ N ☐

## 1. Generator of Hazardous Waste

If "Yes", mark only one of the following – a, b, or c.

- ☒ a. LQG: Generates, in any calendar month, 1,000 kg/mo (2,200 lbs./mo.) or more of hazardous waste; or Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lbs./mo) of acute hazardous waste; or Generates, in any calendar month, or accumulates at any time, more than 100 kg/mo (220 lbs./mo) of acute hazardous spill cleanup material.

- ☐ b. SQG: 100 to 1,000 kg/mo (220 – 2,200 lbs./mo) of non-acute hazardous waste.

- ☐ c. CESQG: Less than 100 kg/mo (220 lbs./mo) of non-acute hazardous waste.

If "Yes" above, indicate other generator activities.

Y ☐ N ☒

- d. Short-Term Generator (generate from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section.

Y ☐ N ☒

- e. United States Importer of Hazardous Waste

Y ☒ N ☐

- f. Mixed Waste (hazardous and radioactive) Generator

Y ☐ N ☒

## 2. Transporter of Hazardous Waste

If "Yes", mark all that apply.

- ☐ a. Transporter  
☐ b. Transfer Facility (at your site)

Y ☐ N ☒

## 3. Treater, Storer, or Disposer of Hazardous Waste

Note: A hazardous waste permit is required for these activities.

Y ☐ N ☒

## 4. Recycler of Hazardous Waste

Y ☐ N ☒

## 5. Exempt Boiler and/or Industrial Furnace

If "Yes", mark all that apply.

- ☐ a. Small Quantity On-site Burner Exemption  
☐ b. Smelting, Melting, and Refining Furnace Exemption

Y ☐ N ☒

## 6. Underground Injection Control

Y ☐ N ☒

## 7. Receives Hazardous Waste from Off-site

## B. Universal Waste Activities; Complete all parts 1-2.

Y ☐ N ☒

1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) [refer to your State regulations to determine what is regulated]. Indicate types of universal waste managed at your site. If "Yes", mark all that apply.

- a. Batteries ☐  
b. Pesticides ☐  
c. Mercury containing equipment ☐  
d. Lamps ☐  
e. Other (specify) ☐  
f. Other (specify) ☐  
g. Other (specify) ☐

Y ☐ N ☒

## 2. Destination Facility for Universal Waste

Note: A hazardous waste permit may be required for this activity.

## C. Used Oil Activities; Complete all parts 1-4.

Y ☐ N ☒

## 1. Used Oil Transporter

If "Yes", mark all that apply.

- ☐ a. Transporter  
☐ b. Transfer Facility (at your site)

Y ☐ N ☒

## 2. Used Oil Processor and/or Re-refiner

If "Yes", mark all that apply.

- ☐ a. Processor  
☐ b. Re-refiner

Y ☐ N ☒

## 3. Off-Specification Used Oil Burner

Y ☐ N ☒

## 4. Used Oil Fuel Marketer

If "Yes", mark all that apply.

- ☐ a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner  
☐ b. Marketer Who First Claims the Used Oil Meets the Specifications

**Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K**

- ❖ You must check with your State to determine if you are eligible to manage laboratory hazardous wastes pursuant to 40 CFR Part 262 Subpart K

- ☐ 1. Opting into or currently operating under 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories  
**See the item-by-item instructions for definitions of types of eligible academic entities. Mark all that apply:**

- ☐ a. College or University  
☐ b. Teaching Hospital that is owned by or has a formal written affiliation agreement with a college or university  
☐ c. Non-profit Institute that is owned by or has a formal written affiliation agreement with a college or university

- ☐ 2. Withdrawing from 40 CFR Part 262 Subpart K for the management of hazardous wastes in laboratories

**11. Description of Hazardous Waste**

**A. Waste Codes for Federally Regulated Hazardous Wastes.** Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g., D001, D003, F007, U112). Use an additional page if more spaces are needed.

D001	D002	D006	D008	D009	D011	D018
F002	F003	F005				

**B. Waste Codes for State-Regulated (i.e., non-Federal) Hazardous Wastes.** Please list the waste codes of the State-Regulated hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.


## 12. Notification of Hazardous Secondary Material (HSM) Activity

Y ☐ N ☒ Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 261.2(a)(2)(ii), 40 CFR 261.4(a)(23), (24), or (25)?

If "Yes", you must fill out the Addendum to the Site Identification Form: Notification for Managing Hazardous Secondary Material.

## 13. Comments

This form is being submitted to correct the site address and mailing address tied to this ID Number (Items #4 and 7).

**14. Certification.** I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. For the RCRA Hazardous Waste Part A Permit Application, all owner(s) and operator(s) must sign (see 40 CFR 270.10(b) and 270.11).

Signature of legal owner, operator, or an authorized representative	Name and Official Title (type or print)	Date Signed (mm/dd/yyyy)
<i>Steve Beach</i>	Director Safety	7/7/10

B-130

Revision 4  
September 14, 1990

Revision 4  
to  
031610001 - Cook County  
The University of Chicago  
ILD005421136  
RCRA Part B Permit Application

Following is an itemized description of changes/additions to the Part B permit application submitted November 8, 1988, and revised on September 21, 1989, January 22, 1990, and May 14, 1990. The changes are in response to deficiencies noted in the Illinois EPA letter dated July 27, 1990. Attached to this letter are four sets of pages to be inserted into the original permit application that covers all changes/additions listed below.

General Comments

1. The Table of Contents was changed to reflect pages added and deleted in Revision 4.

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Page 2

<u>Subject/Paragraph</u>	<u>Description</u>
Part A Application	A new Page 1 of 5 and 2 of 5 are included with this revision.
Chemical and Physical Analysis/C-1	Paragraph changed to state the two conditions U of C must satisfy to store any waste in the hazardous waste storage areas. New Page 17a for information carryover from Page 17.
Waste Analysis Plan/C-2	Paragraph C-2a and Waste Analysis Plan (WAP) changed to state that wastes of unknown compatibility cannot be stored with any other waste in the hazardous waste storage areas, and how they are segregated. WAP revised to state that Sigma-Aldrich MSDS CD-ROM version program is part of the Part B application.
Waste Analysis Plan/C-2 (Continued)	<p>Details on how to operate the Sigma-Aldrich MSDS program added to WAP.</p> <p>Details on how the Sigma-Aldrich MSDS program will be updated in the application added to WAP.</p> <p>WAP revised to note that only one type of unknown can be stored together at one time and how U of C deals with this problem.</p> <p>Paragraph C-2b and WAP revised to include tests required by the New Toxicity Characteristic Rule (i.e., TCLP).</p>

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Subject/Paragraph

Description

WAP revised to detail how waste analysis procedures are used to determine which compatibility group listed in 40 CFR Part 264, Appendix V, the waste belongs.

WAP revised to describe how spilled waste are handled to determine which compatibility group listed in 40 CFR Part 264, Appendix V, the spilled waste belongs.

Spill procedure, added to WAP in Revision 3, deleted from WAP in Revision 4. Procedure included in contingency plan.

Description of  
Containers/D-1a(1)

A computerized information system is not in the budget at this time. Until such time as this system is implemented, a copy of the log book, updated weekly, will be maintained in the U of C security office. This office is the first point of contact for emergency personnel in cases of emergency.

Container Management/  
D-1a(2)

Paragraph revised and diagram on Page 30a revised to show location of drums and storage shelves in the storage rooms.

Containment Coating  
D-1a(3)(a)

Manufacturers literature for Tigerbond 221 added to application (Page 23b) to support resistance claims. Paragraph revised to state use of coating on all parts of containment system (floors, curbs).



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Page 4

<u>Subject/Paragraph</u>	<u>Description</u>
Containment Drainage/ D-1a(3)(b)	References to drum storage area revised to laboratory annex on all maps and in all of the text in the application (p. 22, 23, 27a, Facility Floor Plan, Emergency Equipment Map).
Unloading Operations/F-4a	Paragraph revised to describe consolidation of flammables in 55-gallon drums in flammable storage room.
Contingency Plan/G	A new contingency plan provided with changes to notification section and new hazard evaluation section. New waste transport route map, facility floor plan, and emergency equipment map added.
Assessment/G-4c	Notifications added: IEPA Emergency Response Unit, IEPA Division of Land Pollution Control. Phone numbers added.
Evacuation Plan/G-7	Emergency response equipment diagram page revised from 27b to 27a in paragraph.
Required Reports/G-8	Paragraph revised from DLPC compliance section to DLPC permit section.

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<u>Subject/Paragraph</u>	<u>Description</u>
Closure and Postclosure Requirements/I	A new closure and postclosure plan provided with deletion of reference to drum storage room (Section 1c, 8a); Revision of estimated maximum storage to be consistent with application (Section) 3). New signed closure plan certification statement (Section 16).
Certifications/K-1	A new prior conduct certification form with signature of David L. O'Leary, U of C Assistant Vice President provided.

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Attachments:

Original Part A and Changes  
Facility Plan  
Maps  
Sample Analysis Sheets  
Contingency Plan  
Closure Plan  
Financial Assurance for Closure/Liability  
Waste Analysis Plan  
Facility Inspection for Lab Service Building  
Quality Assurance Plans  
Log Book Example  
Water Pressure Evaluation  
Example Material Safety Data Sheets

RCRA PART B PERMIT APPLICATION  
FOR  
THE UNIVERSITY OF CHICAGO

A. Part A Application:

A new Part A application which identifies the units and waste consistent with the Part B application is included in the following pages. A copy of the original Part A submitted on November 19, 1980 and a revision approved on October 24, 1984 is included as an attachment to this permit application. The new Part A application matches the approved revision.

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FORM <b>1</b> GENERAL		U.S. ENVIRONMENTAL PROTECTION AGENCY <b>EPA</b> GENERAL INFORMATION Consolidated Permits Program (Read the "General Instructions" before starting.)		I. EPA I.D. NUMBER FIELD005421136D																																																					
<b>II. POLLUTANT CHARACTERISTICS</b> <p>INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">SPECIFIC QUESTIONS</th> <th colspan="3">MARK "X"</th> <th rowspan="2">SPECIFIC QUESTIONS</th> <th colspan="3">MARK "X"</th> </tr> <tr> <th>YES</th> <th>NO</th> <th>FORM ATTACHED</th> <th>YES</th> <th>NO</th> <th>FORM ATTACHED</th> </tr> </thead> <tbody> <tr> <td>A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)</td> <td></td> <td>X</td> <td></td> <td>B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)</td> <td></td> <td>X</td> <td></td> <td>D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)</td> <td>X</td> <td></td> <td></td> <td>F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)</td> <td></td> <td>X</td> <td></td> <td>H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)</td> <td></td> <td>X</td> <td></td> </tr> <tr> <td>I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)</td> <td></td> <td>X</td> <td></td> <td>J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)</td> <td></td> <td>X</td> <td></td> </tr> </tbody> </table>		SPECIFIC QUESTIONS	MARK "X"			SPECIFIC QUESTIONS	MARK "X"			YES	NO	FORM ATTACHED	YES	NO	FORM ATTACHED	A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)		X		B. Does or will this facility (either existing or proposed) include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)		X		C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)		X		D. Is this a proposed facility (other than those described in A or B above) which will result in a discharge to waters of the U.S.? (FORM 2D)		X		E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)	X			F. 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Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.</p>	
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<b>III. NAME OF FACILITY</b> 1 <b>SKIP</b> THE UNIVERSITY OF CHICAGO																																																									
<b>IV. FACILITY CONTACT</b> A. NAME & TITLE (last, first, & title) 2 WANG, SAM D.R. B. PHONE (area code & no.) 3 1 2 7 5 3 0 8 2 9																																																									
<b>V. FACILITY MAILING ADDRESS</b> A. STREET OR P.O. BOX 3 6 0 4 1 BLACKSTONE AVE. B. CITY OR TOWN 4 CHICAGO C. STATE IL D. ZIP CODE 6 0 6 3 7																																																									
<b>VI. FACILITY LOCATION</b> A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER 5 5 8 0 1 S. ELLIS AVE. B. COUNTY NAME COOK C. CITY OR TOWN 6 CHICAGO D. STATE IL E. ZIP CODE 6 0 6 3 7 F. COUNTY CODE (if known)																																																									

VII. SIC CODES (4-digit, in order of priority)									
A. FIRST					B. SECOND				
7	8	2	2	1	7	8	0	6	9
(specify) University and Professional Schools					(specify) Numerous Specialty Hospitals				
C. THIRD					D. FOURTH				
8	0	6	2		7	8	2	1	1
(specify) General & Surgical Hospital					(specify) Elementary & Secondary Schools				
VIII. OPERATOR INFORMATION									
A. NAME									
THE UNIVERSITY OF CHICAGO									
B. Is the name listed in Item VIII-A also the owner? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO									
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)									
F = FEDERAL S = STATE P = PRIVATE					M = PUBLIC (other than federal or state) O = OTHER (specify) P (specify)				
D. PHONE (area code & no.)									
					3 1 2 7 0 2 1 2 3 4				
E. STREET OR P.O. BOX									
5 8 0 1 S. ELLIS AVE.									
F. CITY OR TOWN									
CHICAGO									
G. STATE									
I.L.									
H. ZIP CODE									
6 0 6 3 7									
IX. INDIAN LAND									
Is the facility located on Indian lands? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO									
X. EXISTING ENVIRONMENTAL PERMITS									
A. NPDES (Discharges to Surface Water)					D. PSD (Air Emissions from Proposed Sources)				
9 N					9 P				
B. UIC (Underground Injection of Fluids)					E. OTHER (specify)				
9 U					0 3 1 6 0 0 F.Y.Y. (specify) ILEPA INCINERATOR PERMITS (SEE ATCH.)				
C. RCRA (Hazardous Wastes)					E. OTHER (specify)				
9 R					0 3 1 6 4 1 0 0 0 1 (specify) ILEPA HAZARDOUS WASTE PERMIT				
XI. MAP									
Attach to this application a topographic map of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.									
XII. NATURE OF BUSINESS (provide a brief description)									
UNIVERSITY OF CHICAGO IS AN EDUCATIONAL INSTITUTION OPERATING A UNIVERSITY INCLUDING A COLLEGE, GRADUATE DEPARTMENTS, PROFESSIONAL SCHOOLS, PRIMARY AND SECONDARY SCHOOLS, LIBRARIES, PRESS, EDUCATIONAL RESEARCH DEPARTMENTS, PRITZKER SCHOOL OF MEDICINE AND THE UNIVERSITY OF CHICAGO HOSPITALS AND CLINICS FOR TRAINING PHYSICIANS AND TREATING PATIENTS.									
XIII. CERTIFICATION (see instructions)									
I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.									
A. NAME & OFFICIAL TITLE (Type or print)					B. SIGNATURE			C. DATE SIGNED	
David L. O'Leary Assistant Vice President								November 8, 1988	
XIV. COMMENTS FOR OFFICIAL USE ONLY									
C									

FORM <b>1</b> RCRA	 <b>U.S. ENVIRONMENTAL PROTECTION AGENCY</b> <b>HAZARDOUS WASTE PERMIT APPLICATION</b> Consolidated Permits Program <i>(This information is required under Section 3005 of RCRA.)</i>	<b>I. EPA I.D.</b> <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">F</td><td style="width:10%;">I</td><td style="width:10%;">L</td><td style="width:10%;">D</td><td style="width:10%;">0</td><td style="width:10%;">0</td><td style="width:10%;">5</td><td style="width:10%;">4</td><td style="width:10%;">2</td><td style="width:10%;">1</td><td style="width:10%;">1</td><td style="width:10%;">3</td><td style="width:10%;">6</td><td style="width:10%;">1</td> </tr> </table>	F	I	L	D	0	0	5	4	2	1	1	3	6	1
F	I	L	D	0	0	5	4	2	1	1	3	6	1			
<b>OFFICIAL USE ONLY</b> APPROVED _____ DATE RECEIVED (yr., mo., & day) _____ COMMENTS _____																
<b>II. FIRST OR REVISED APPLICATION</b> Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.																
<b>A. FIRST APPLICATION</b> (place an "X" below and provide the appropriate date) <input type="checkbox"/> 1. EXISTING FACILITY (See instructions for definition of "existing" facility. Complete item below.) <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">C</td><td style="width:10%;">YR.</td><td style="width:10%;">MO.</td><td style="width:10%;">DAY</td> </tr> <tr> <td style="text-align: center;">8</td><td style="text-align: center;">11</td><td style="text-align: center;">12</td><td style="text-align: center;">12</td> </tr> </table> FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED (use the boxes to the left)			C	YR.	MO.	DAY	8	11	12	12						
C	YR.	MO.	DAY													
8	11	12	12													
<input type="checkbox"/> 2. NEW FACILITY (Complete item below.) FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN: <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">YR.</td><td style="width:10%;">MO.</td><td style="width:10%;">DAY</td> </tr> <tr> <td style="text-align: center;">11</td><td style="text-align: center;">12</td><td style="text-align: center;">12</td> </tr> </table>			YR.	MO.	DAY	11	12	12								
YR.	MO.	DAY														
11	12	12														
<b>B. REVISED APPLICATION</b> (place an "X" below and complete item I above) <input checked="" type="checkbox"/> 1. FACILITY HAS INTERIM STATUS <input type="checkbox"/> 2. FACILITY HAS A RCRA PERMIT																
<b>III. PROCESSES - CODES AND DESIGN CAPACITIES</b>																
<b>A. PROCESS CODE</b> - Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the form (Item III-C).																
<b>B. PROCESS DESIGN CAPACITY</b> - For each code entered in column A enter the capacity of the process. 1. AMOUNT - Enter the amount. 2. UNIT OF MEASURE - For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.																
<b>PROCESS</b> Storage: CONTAINER (barrel, drum, etc.) TANK WASTE PILE SURFACE IMPOUNDMENT Injection Well LANDFILL LAND APPLICATION OCEAN DISPOSAL SURFACE IMPOUNDMENT	<b>PRO- CESS CODE</b> S01 S02 S03 S04 D79 D80 D81 D82 D83	<b>APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY</b> GALLONS OR LITERS GALLONS OR LITERS CUBIC YARDS OR CUBIC METERS GALLONS OR LITERS GALLONS OR LITERS ACRE-FEET (the volume that would cover one acre to a depth of one foot) OR HECTARE-METER ACRES OR HECTARES GALLONS PER DAY OR LITERS PER DAY GALLONS OR LITERS														
<b>PROCESS</b> Treatment: TANK SURFACE IMPOUNDMENT INCINERATOR OTHER (Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided: Item III-C.)	<b>PRO- CESS CODE</b> T01 T02 T03 T04	<b>APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY</b> GALLONS PER DAY OR LITERS PER DAY GALLONS PER DAY OR LITERS PER DAY GALLONS PER DAY OR LITERS PER DAY TONS PER HOUR OR METRIC TONS PER HOUR GALLONS PER HOUR OR LITERS PER HOUR GALLONS PER DAY OR LITERS PER DAY														
<b>UNIT OF MEASURE</b> GALLONS.....G LITERS.....L CUBIC YARDS.....Y CUBIC METERS.....C GALLONS PER DAY.....U	<b>UNIT OF MEASURE CODE</b> G L Y C U	<b>UNIT OF MEASURE</b> LITERS PER DAY.....V TONS PER HOUR.....D METRIC TONS PER HOUR.....W GALLONS PER HOUR.....E LITERS PER HOUR.....H														
<b>UNIT OF MEASURE</b> ACRE-FEET.....A HECTARE-METER.....F ACRES.....B HECTARES.....Q	<b>UNIT OF MEASURE CODE</b> A F B Q															
<b>EXAMPLE FOR COMPLETING ITEM III (shown in line numbers X-1 and X-2 below):</b> A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.																
<b>C. DUPLICATE</b>																
LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY	FOR OFFICIAL USE ONLY									
X-1	S 0 2	600	G	5												
X-2	T 0 3	20	E	6												
1	S 0 1	460	G	7												
2				8												
3				9												
4				10												



T04 - HYDROLYSIS AND NEUTRALIZATION OF SEVERAL TYPES OF CHEMICALS, (ACID AND BASES)

# 7. DESCRIPTION OF HAZARDOUS WASTES

**EPA HAZARDOUS WASTE NUMBER** - Enter the four-digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four-digit number(s) from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

**ESTIMATED ANNUAL QUANTITY** - For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

**UNIT OF MEASURE** - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS.....	P	KILOGRAMS.....	K
TONS.....	T	METRIC TONS.....	M

If records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

## PROCESSES

### 1. PROCESS CODES:

For listed hazardous waste: For each listed hazardous waste entered in column A select the code(s) from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed hazardous waste: For each characteristic or toxic contaminant entered in column A, select the code(s) from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed hazardous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

**NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER** - Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

**SAMPLE FOR COMPLETING ITEM IV (shown in line numbers X-1, X-2, X-3, and X-4 below)** - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZ. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES	
				1. PROCESS CODES (enter)	2. PROCESS DESCRIPTION (If a code is not entered in D(1))
-1	K 0 5 4	900	P	T 0 3 D 8 0	
-2	D 0 0 2	400	P	T 0 3 D 8 0	
-3	D 0 0 1	100	P	T 0 3 D 8 0	
-4	D 0 0 2				included with above

EPA I.D. NUMBER (enter from page 1)										FOR OFFICIAL USE ONLY									
W I L D 0 0 5 4 2 1 1 3 6										W DUP 2 DUP									
IV. DESCRIPTION OF HAZARDOUS WASTES (continued)										D. PROCESSES									
NO.	A. EPA HAZARD. WASTE NO. (enter code)				B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	1. PROCESS CODES (enter)				2. PROCESS DESCRIPTION (if a code is not entered in D(1))								
	1	2	3	4			5	6	7	8	9	10	11	12					
1	D	0	0	1	750	K	S	0	1										
2	D	0	0	2	400	K	S	0	1										
3	D	0	0	3	20	K	S	0	1										
4	D	0	0	5	10	K	S	0	1										
5	D	0	0	6	6	K	S	0	1										
6	D	0	0	7	110	K	S	0	1										
7	D	0	0	9	28	K	S	0	1										
8	D	0	1	1	6	K	S	0	1										
9	D	0	1	3	4	K	S	0	1										
10	D	0	0	8												INCLUDED WITH ABOVE			
11	D	0	0	4	28	K	S	0	1										
12	D	0	1	6	10	K	S	0	1										
13	P	0	3	5												INCLUDED WITH ABOVE			
14	U	0	0	2	120	K	S	0	1										
15	U	0	0	9	5	K	S	0	1										
16	K	0	1	2												INCLUDED WITH ABOVE			
17	U	0	1	9	160	K	S	0	1										
18	K	0	0	1												INCLUDED WITH ABOVE			
19	U	2	1	1	25	K	S	0	1										
20	K	0	2	1												INCLUDED WITH ABOVE			
21	U	0	4	4	130	K	S	0	1										
22	K	0	0	9												INCLUDED WITH ABOVE			
23	U	0	8	0	360	K	S	0	1										
24	U	1	1	2	150	K	S	0	1										
25	U	1	5	4	100	K	S	0	1										
26	U	1	6	8	2	K	S	0	1										

EPA I.D. NUMBER (enter from page 1)										FOR OFFICIAL USE ONLY									
W I L D D 0 5 4 2 1 1 3 6 1										W DUP 2 DUP									
IV. DESCRIPTION OF HAZARDOUS WASTES (continued)																			
LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES															
				1. PROCESS CODES (enter)								2. PROCESS DESCRIPTION (if a code is not entered in D(1))							
				17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	U 1 6 9	2	K											S 0 1					
2	U 1 9 6	6	K											S 0 1					
3	U 2 1 3	10	K											S 0 1					
4	U 2 2 0	120	K											S 0 1					
5	U 0 1 3	1	K											S 0 1					
6	K 0 0 6	1	K											S 0 1					
7	P 0 3 0	2	K											S 0 1					
8	U 1 4 4	2	K											S 0 1					
9	U 0 6 9	100	K											S 0 1					
10	U 1 9 7	2	K											S 0 1					
11	P 0 3 2	2	K											S 0 1					
12	P 0 3 4	2	K											S 0 1					
13	P 0 5 3	2	K											S 0 1					
14	U 0 3 4	4	K											S 0 1					
15	U 2 3 9	150	K											S 0 1					
16	U 1 8 8	2	K											S 0 1					
17	U 1 0 8	20	K											S 0 1					
18	U 2 1 3	2	K											S 0 1					
19	U 0 5 6	50	K											S 0 1					
20	P 0 8 7	15	K											S 0 1					
21	U 0 2 1	2	K											S 0 1					
22	P 0 9 0	2	K											S 0 1					
23	F 0 0 1	18	K											S 0 1					
24	U 1 2 2	16	K											S 0 1					
25	U 1 5 9	10	K											S 0 1					
26	P 0 5 0	2	K											S 0 1					

EPA I.D. NUMBER (enter from page 1)										FOR OFFICIAL USE ONLY									
W I L D 0 0 5 4 2 1 1 3 6 1										W DUP 2 DUP									
IV. DESCRIPTION OF HAZARDOUS WASTES (continued)																			
WASTE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES															
				1. PROCESS CODES (enter)															
1	P 1 1 7	2	K	S 0 1															
2	P 0 8 9	8	K	S 0 1															
3	U 1 5 4	80	K	S 0 1															
4	U 0 0 2	20	K	S 0 1															
5	U 2 2 8	22	K	S 0 1															
6	U 1 8 8	2	K	S 0 1															
7	P 0 7 2	2	K	S 0 1															
8	U 1 9 6	2	K	S 0 1															
9	U 2 3 2	2	K	S 0 1															
10	U 1 1 7	30	K	S 0 1															
11	U 0 3 1	12	K	S 0 1															
12	P 0 7 7	1	K	S 0 1															
13	U 0 3 1	1	K	S 0 1															
14	U 2 1 9	1	K	S 0 1															
15	U 1 6 5	1	K	S 0 1															
16	U 0 2 1	1	K	S 0 1															
17	U 0 1 2	5	K	S 0 1															
18	U 0 1 4	1	K	S 0 1															
19	U 0 7 7	1	K	S 0 1															
20	U 0 5 7	2	K	S 0 1															
21	U 0 0 6																		Quantity and process with D003
22																			
23																			
24																			
25																			
26																			

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. (enter from page 1)													
F	I	L	D	0	0	5	4	2	1	1	3	6	6

#### V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

#### VI. PHOTOGRAPHS

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

#### VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE (degrees, minutes, & seconds)						LONGITUDE (degrees, minutes, & seconds)					
4	1	4	7	0	2	0	8	7	3	5	0
58	59	60	61	62	63	72	73	74	75	76	77

#### VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER						2. PHONE NO. (area code & no.)					
E						7					
3. STREET OR P.O. BOX						4. CITY OR TOWN					
F						G					
5. ST.						6. ZIP CODE					
12						13					

#### IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED
David L. O'Leary Assistant Vice President	<i>David L. O'Leary</i>	November 8, 1988

#### X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME (print or type)	B. SIGNATURE	C. DATE SIGNED

V. FACILITY DRAWING (see page 4)

(SEE ATTACHMENTS)

ATTACHMENT

FORM 3510-1 (X) Existing Environmental Permits

Active Incinerators

031600DDP	A. J. Carlson Animal Research Facility
031600DDN	Anatomy Building

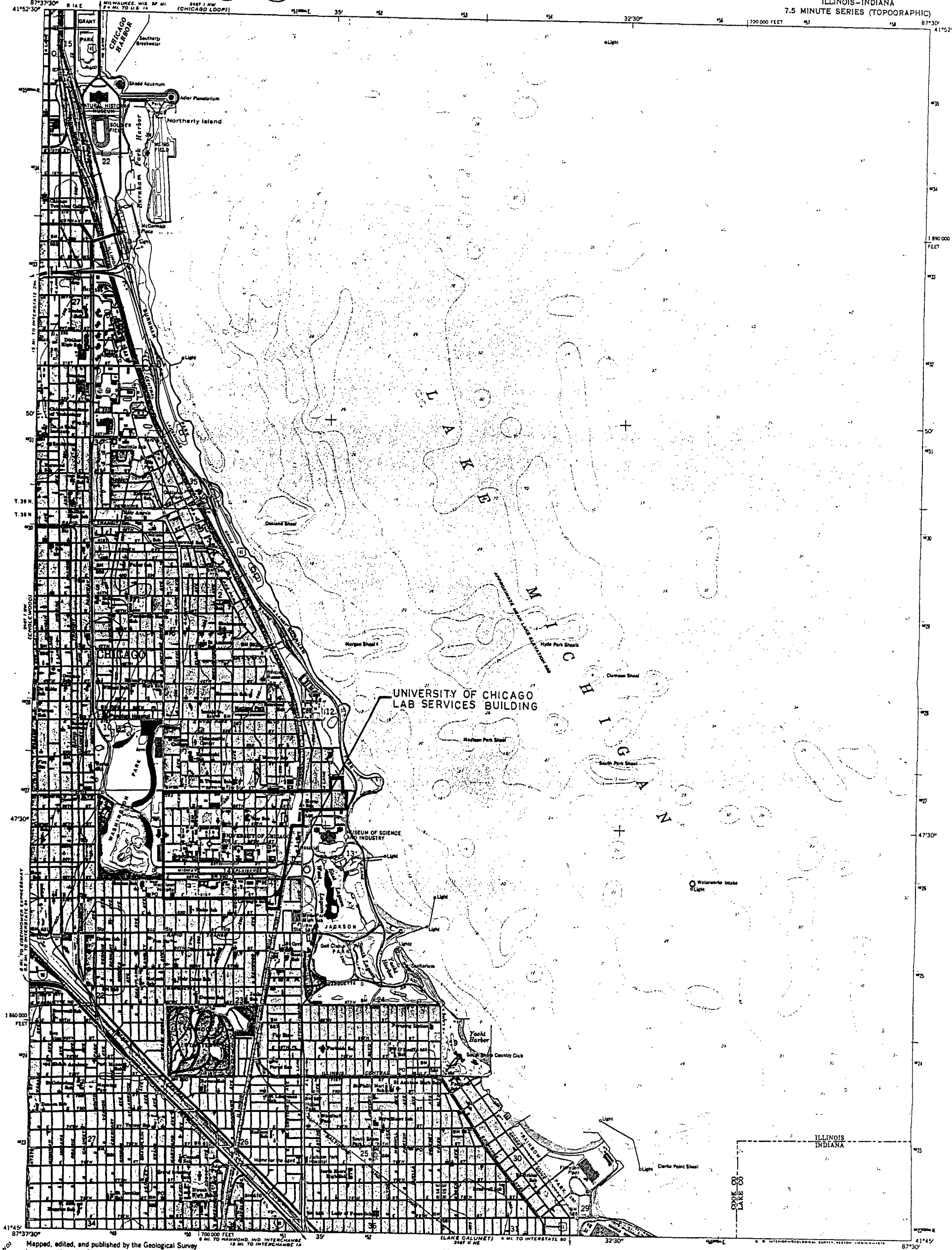
Inactive Incinerators

031600DDO	Silvain Arma Weiler Childrens Hospital
031600EYY	Chicago Line-in Hospital

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

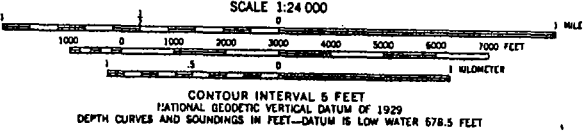


JACKSON PARK QUADRANGLE  
ILLINOIS-INDIANA  
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey  
in cooperation with State of Illinois Geological Survey  
Control by USGS, USCGS, and City of Chicago  
Planimetry by photogrammetric methods from aerial photographs  
taken 1962-63. Topography by planimetric surveys 1926. Revised 1963  
Selected hydrographic data compiled from U.S. Lake Survey  
Charts 75 (1960), 751 and 752 (1963)  
This information is not intended for navigational purposes  
Polyconic projection, 1927 North American datum  
10,000-foot grid based on Illinois coordinate system, east zone  
1000-meter Universal Transverse Mercator grid ticks,  
zone 16, shown in blue  
Red tint indicates areas in which only landmark buildings are shown

UTM GRID AND 1973 MAGNETIC NORTH  
DECLINATION AT CENTER OF SHEET



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092  
STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801  
AND INDIANA DEPARTMENT OF NATURAL RESOURCES, INDIANAPOLIS, INDIANA 46204  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

Revisions shown in purple compiled from aerial photographs  
taken 1972. This information not field checked  
Purple indicates division of urban areas



ROAD CLASSIFICATION  
Heavy-duty ——— Light-duty ———  
Unimproved dirt ———  
Interstate Route U.S. Route State Route

JACKSON PARK, ILL.-IND.  
N4145-W8730/7.5

1961  
PHOTOREVISED 1972  
AMS 3467 I SE-SERIES V063

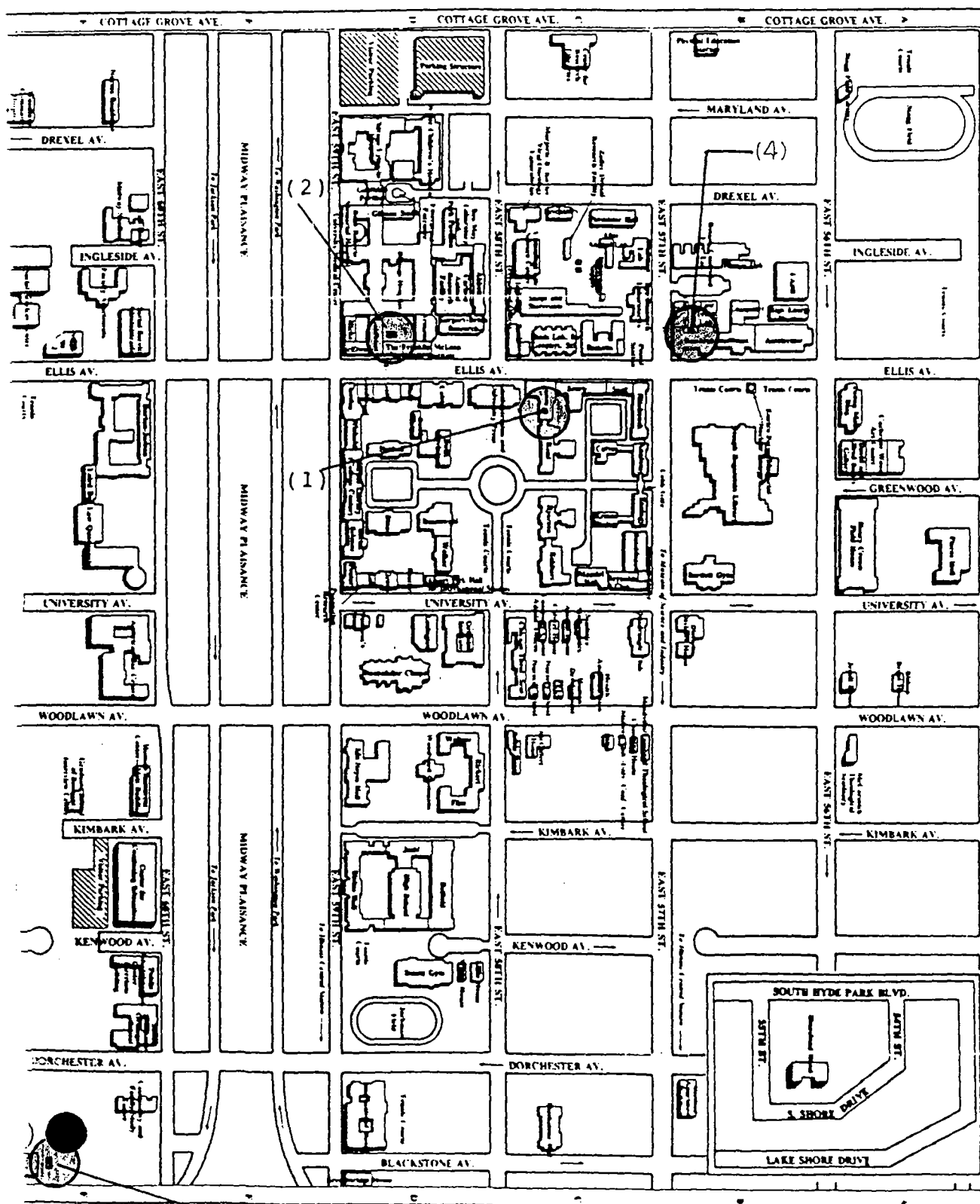
RECEIVED  
NOV 10 1988  
IEPA-DLPC



# HAZARDOUS WASTE ACCUMULATION AND PROCESSING FACILITY

Fig. 2 University of Chicago Map

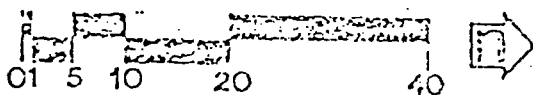
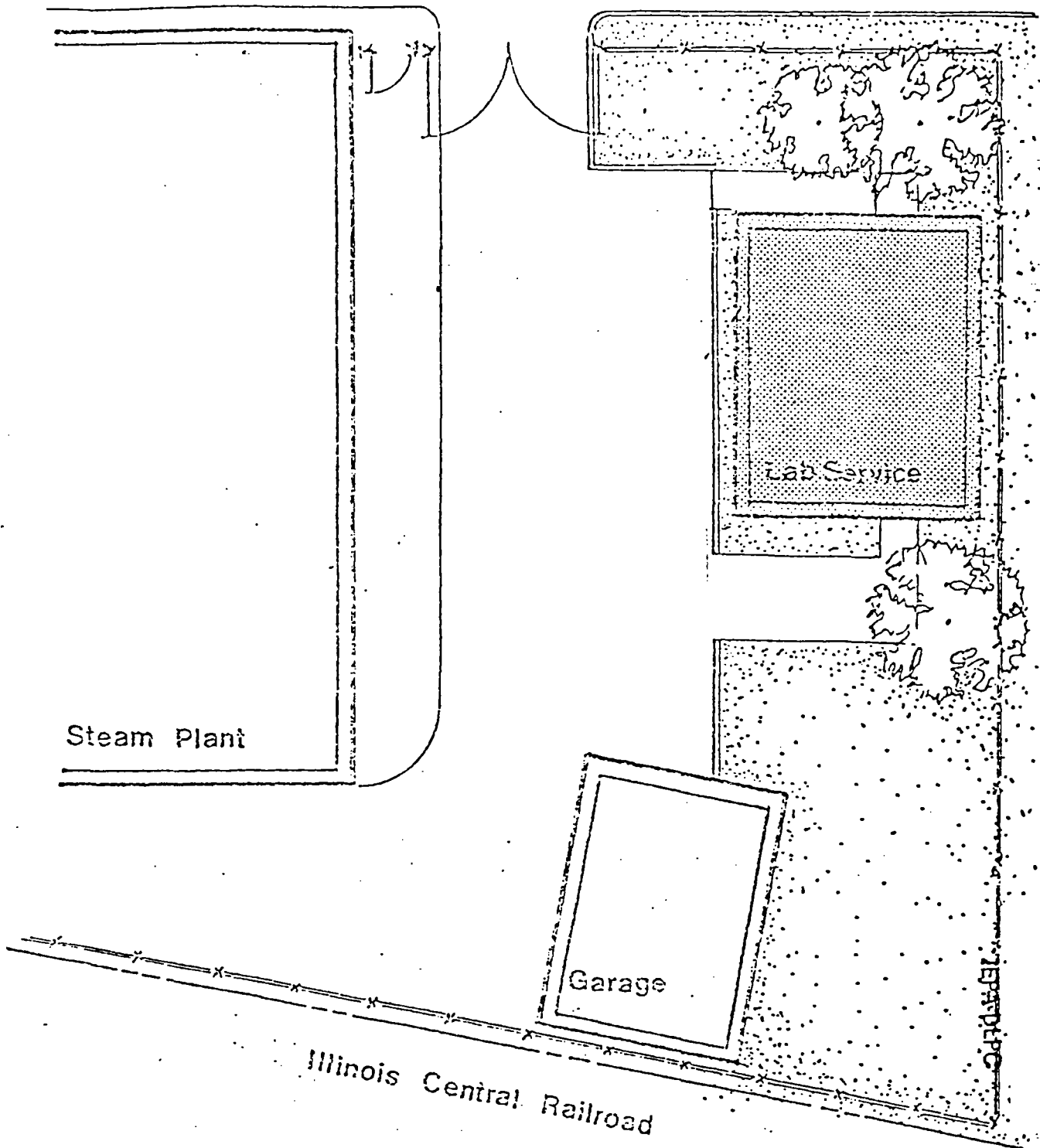
- (1) Room 16 in George Herbert Jones Laboratory
- (2) Franklin McLean Research Institute Blockhouse
- (3) Laboratory Service Building
- (4) Research Institute



(3)

Fig. 5 Laboratory Service Building

S. Blackstone Ave.



Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRESIDENT  
PHYSICAL PLANNING

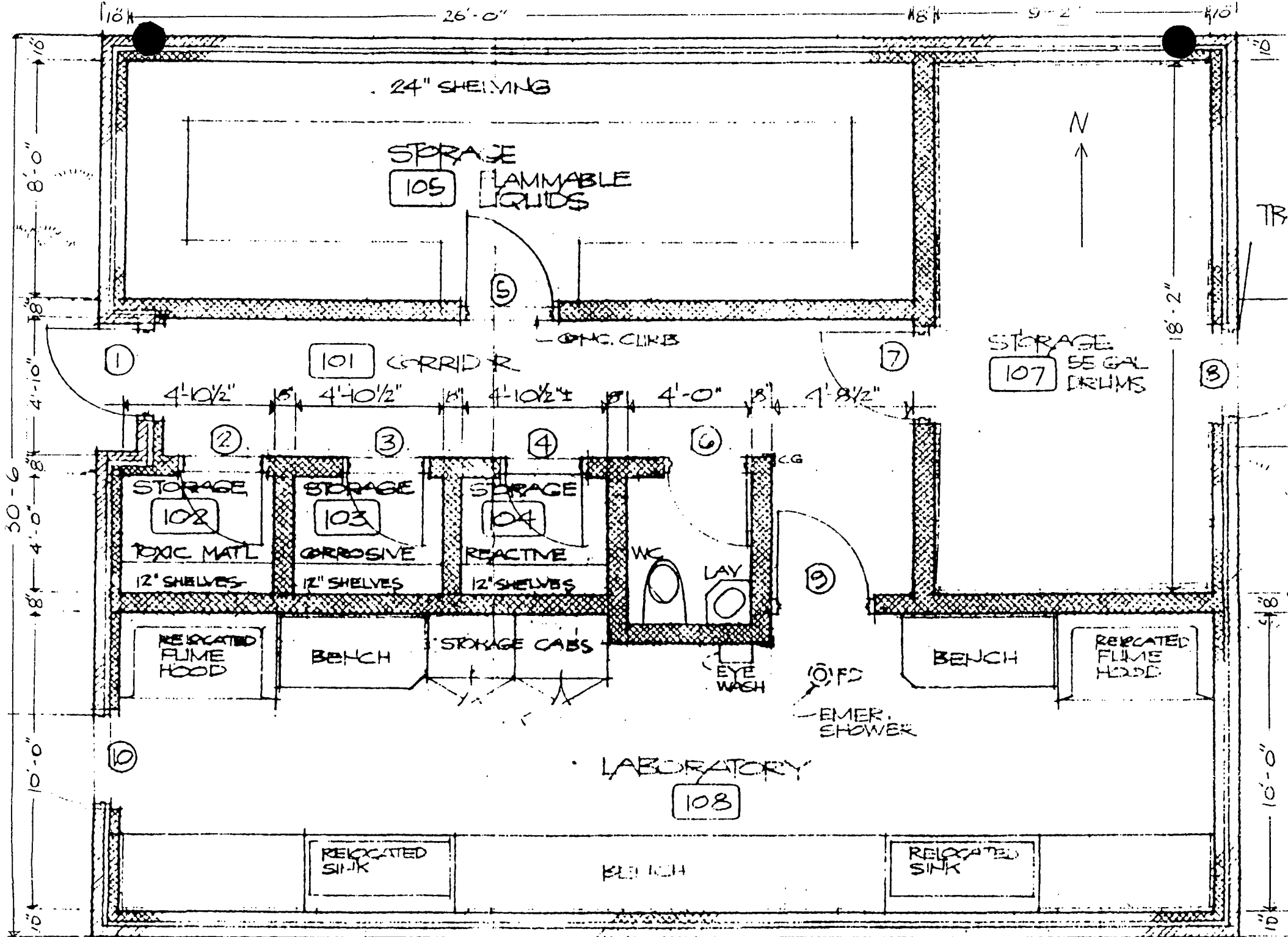
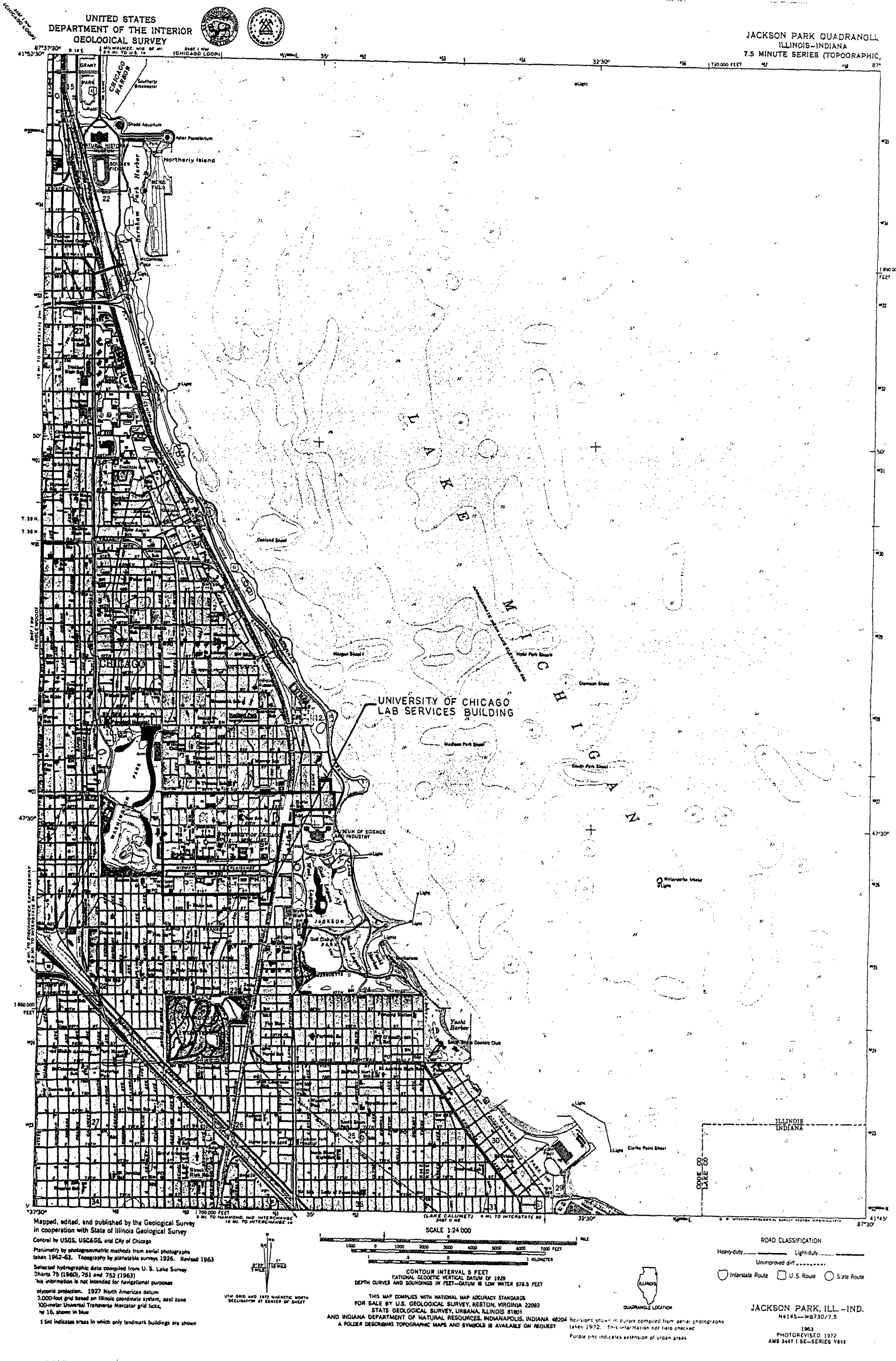


Fig. 6 Floor Plan of Laboratory Service Building



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

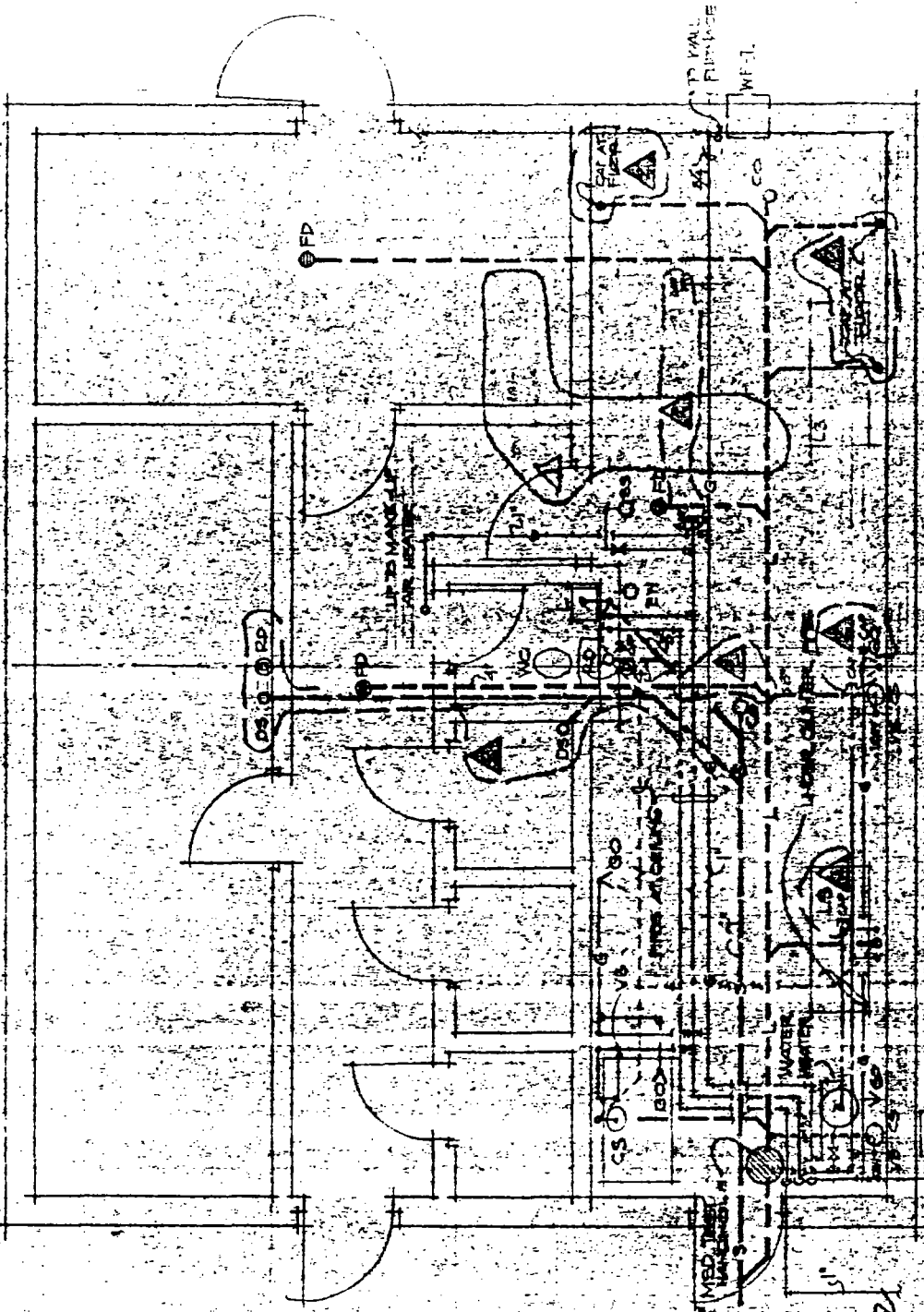
JACKSON PARK QUADRANGLE  
ILLINOIS-INDIANA  
7.5 MINUTE SERIES (TOPOGRAPHIC)

UNIVERSITY OF CHICAGO  
LAB SERVICES BUILDING

ROAD CLASSIFICATION  
Heavy-duty ——— Light-duty ———  
Unimproved dirt ———  
Interstate Route U.S. Route State Route

JACKSON PARK, ILL.-IND.  
N4145-W8730/7.5  
1963  
PHOTOREVISED 1972  
AMS 3467 1 SE-SERIES V813

ROOF/VALLEY



TO WALL  
PLUMBING

WF-1

CO

CS

V6

V8

V10

V12

V14

V16

V18

V20

V22

V24

TO WATER  
SUPPLY IN  
BOILER PLANT

5"

4"

3"

2"

1"

1/2"

1/4"

1/8"

1/16"

1/32"

1/64"

1/128"

1/256"

1/512"

1/1024"

1/2048"

1/4096"

1/8192"

1/16384"

1/32768"

1/65536"

1/131072"

1/262144"

1/524288"

1/1048576"

1/2097152"

1/4194304"

1/8388608"

1/16777216"

NEW GAS SERVICE / CORRELATE WITH GAS COMPANY

GAS METER AND VALVE

5"

4"

3"

2"

1"

1/2"

1/4"

1/8"

1/16"

1/32"

1/64"

1/128"

1/256"

1/512"

1/1024"

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TO WATER  
SUPPLY IN  
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1/524288"

1/1048576"

1/2097152"

1/4194304"

1/8388608"

1/16777216"



7/1/55

Generator: University of Chicago

sample#	Chemical names
1	Trisodium phosphate
2	Calcium carbonate
3	Maleic acid
4	Thiourea
5	Carbon tetrachloride
6	Diethylene glycol
7	Salicylanilide
8	Benzidine yellow
9	2-Naphthalenecarboxamide, 3 hydroxy-n-(2,4-dimethylphenyl
10	Cumene
11	Benzophenone
12	Polyethylene glycol (600) monolaurate
13	2-Methyl propanamide



X: 3401 4000- 600 1.00 3.16 100.00 T F 53 M 4 DB UCC1

REF. VALUES : 4000 85.8 2000 85.8

CHEM: SOLID

3967.	83.3	3912.	80.3	3896.	76.8	3877.	78.2	3860.	75.2
3847.	72.7	3832.	72.1	3811.	72.2	3793.	71.6	3775.	73.0
3759.	73.4	3741.	65.7	3729.	66.1	3718.	68.0	3704.	65.4
3684.	61.6	3665.	57.6	3640.	49.7	3623.	45.3	3555.	24.3
3387.	6.1	3213.	7.0	3175.	8.5	3075.	14.8	2963.	20.4
2937.	22.0	2857.	30.2	2746.	40.8	2702.	45.5	2644.	51.9
2421.	60.4	2391.	58.1	2371.	55.4	2358.	46.8	2330.	50.5
2260.	58.1	1976.	77.8	1896.	74.6	1891.	75.4	1876.	71.4
1867.	73.7	1852.	70.9	1819.	70.8	1800.	68.1	1791.	69.4
1776.	64.7	1768.	66.3	1755.	64.1	1740.	61.7	1723.	60.0
1704.	57.5	1690.	58.3	1675.	60.5	1654.	61.1	1641.	62.4
1625.	63.2	1599.	76.7	1580.	78.7	1576.	81.9	1562.	73.9
1546.	72.0	1525.	79.3	1511.	80.2	1504.	87.2	1493.	85.2
1477.	86.5	1461.	85.8	1451.	90.6	1439.	91.9	1421.	91.6
1401.	89.6	1390.	92.7	1342.	92.8	1223.	57.5	1073.	3.3
1004.	15.8	956.	11.0	885.	24.8	874.	28.3	798.	59.4
678.	69.3	631.	40.4						

END 82 PEAKS FOUND

Result : Tri sodium phosphate.

W: 3401 4000- 600 1.00 -0.44 45.66 T F S3 M 4 08 U002

REF. VALUES : 4000 43.5 2000 43.5

CHEM: SOLID

3938.	41.7	3864.	41.6	3847.	41.2	3832.	41.9	3812.	42.5
3794.	42.5	3740.	41.8	3729.	40.3	3684.	36.1	3638.	0.0
3559.	27.1	3517.	25.5	3475.	24.7	3416.	24.2	3276.	30.2
3227.	31.9	3115.	35.7	2856.	39.3	2513.	40.7	2356.	42.3
2340.	42.8	1979.	41.6	1803.	36.5	1779.	38.5	1740.	37.5
1723.	36.1	1704.	35.5	1690.	34.5	1671.	33.9	1652.	30.7
1640.	30.7	1574.	24.5	1522.	4.8	1509.	2.7	1500.	2.8
1491.	0.0	1475.	0.0	1437.	0.0	1120.	35.8	879.	7.9
863.	30.2	715.	22.7						

END 42 PEAKS FOUND

CAUTION: PEAKS <0.1%T WILL BE ADJUSTED TO 0.1%T

result: Calcium Carbonate.

Z: 3401 4000- 500 1.00 2.07 100.00 T F 33 M 4 DB U003

REF. VALUES : 4000 96.1 2000 96.1

CHEM: SOLID

3911.	90.9	3896.	90.5	3878.	90.6	3860.	90.6	3847.	88.9
3832.	88.5	3812.	88.4	3793.	89.3	3762.	90.8	3742.	87.4
3728.	87.1	3718.	89.1	3705.	88.2	3696.	88.7	3683.	85.5
3665.	82.3	3640.	75.2	3623.	72.0	3602.	64.8	3572.	59.4
3558.	55.2	3538.	53.7	3515.	50.4	3492.	47.8	3454.	44.8
3414.	44.1	3376.	45.7	3091.	15.8	3073.	16.1	3023.	17.2
3009.	16.8	2971.	19.2	2893.	19.7	2812.	30.1	2737.	42.5
2653.	31.3	2528.	40.1	2357.	76.4	2339.	79.3	2328.	82.1
2172.	94.6	2098.	96.4	2014.	93.5	1983.	96.4	1950.	93.7
1914.	85.7	1864.	15.0	1801.	20.5	1777.	2.3	1703.	2.7
1689.	3.7	1596.	25.6	1563.	69.6	1548.	75.3	1525.	82.6
1504.	70.4	1477.	49.1	1461.	72.9	1412.	7.5	1366.	45.2
1342.	57.1	1289.	3.2	1266.	3.8	1218.	56.9	1176.	71.8
1159.	62.5	1146.	77.8	1114.	42.0	1076.	22.2	1010.	65.2
979.	73.0	912.	4.3	836.	59.7	803.	23.4	742.	21.4
717.	13.6	698.	65.3	677.	25.4	644.	63.0		

END 79 PEAKS FOUND

result: Maleic Acid.

X: 3401 4000- 600 1.00 2.02 100.00 T F S3 M 4 DB UOC4

REF. VALUES : 4000 89.1 2000 89.1

CHEM: SOLID S

3912.	85.3	3897.	82.4	3861.	83.4	3847.	81.4	3831.	80.4
3812.	79.5	3793.	79.5	3757.	80.8	3742.	74.1	3729.	72.6
3717.	72.6	3680.	54.3	3664.	41.2	3634.	31.8	3623.	28.3
3602.	25.1	3590.	23.4	3577.	21.1	3556.	17.8	3537.	15.9
3517.	13.6	3488.	11.6	3475.	10.4	3438.	9.6	3428.	9.4
3414.	9.4	3388.	10.1	3359.	11.6	3276.	17.4	2360.	89.0
2341.	93.2	2329.	90.5	2006.	88.9	1976.	85.2	1895.	80.4
1877.	79.0	1854.	82.5	1837.	84.3	1779.	83.6	1768.	84.8
1754.	83.3	1740.	80.2	1723.	77.1	1703.	74.1	1687.	68.4
1652.	48.1	1641.	45.3	1581.	76.0	1564.	71.8	1557.	73.6
1540.	70.3	1527.	70.0	1513.	69.1	1504.	69.6	1493.	68.3
1476.	67.3	1461.	61.7	1399.	52.0	1389.	50.4	1241.	2.1
1216.	2.2	1202.	2.3	1188.	2.4	1165.	2.2	1130.	2.1
1107.	2.3	1091.	2.2	1069.	2.6	1048.	2.6	972.	14.1
803.	20.2	665.	82.9						

END 72 PEAKS FOUND

result: Thioarea

X: 3401 4000- 600 1.00 3.16 100.00 T F 53 M 4 DB U006

REF. VALUES : 4000 82.3 2000 82.3

CHEM: LIQUID

3913.	82.1	3896.	80.8	3877.	82.2	3860.	82.3	3847.	78.8
3831.	81.1	3813.	80.0	3794.	79.5	3761.	81.7	3741.	78.7
3729.	78.1	3718.	80.1	3705.	79.4	3683.	77.6	3665.	76.1
3642.	73.0	3623.	71.3	3379.	3.5	3362.	3.6	2872.	5.2
2742.	54.2	2647.	67.6	2488.	72.8	2409.	76.9	2360.	73.9
2352.	76.2	2330.	76.3	1954.	79.4	1724.	79.5	1705.	82.4
1689.	83.2	1671.	81.5	1655.	80.6	1641.	80.3	1576.	84.8
1562.	81.3	1547.	78.9	1524.	81.3	1511.	74.6	1462.	31.6
1420.	45.6	1413.	45.8	1401.	46.0	1357.	22.1	1322.	44.7
1304.	42.8	1252.	35.3	1230.	45.9	1122.	3.4	1078.	3.3
940.	25.1	891.	35.1	832.	68.7				

END 53 PEAKS FOUND

Diethylene glycol

X: 3401 4000- 600 1.00 -0.60 38.21 T F S3 M 4 DB U0C7

REF. VALUES : 4000 36.3 2000 36.3

CHEM: SOLID

3939.	34.5	3912.	33.4	3895.	32.8	3864.	32.8	3847.	30.9
3830.	31.3	3813.	31.3	3792.	31.8	3762.	31.9	3743.	31.0
3729.	30.7	3704.	31.0	3683.	30.5	3666.	29.9	3640.	28.7
3623.	28.0	3605.	27.4	3559.	25.5	3479.	4.8	3450.	6.7
3378.	2.2	3278.	9.7	3206.	10.7	3106.	5.9	3057.	3.7
3025.	4.7	2908.	12.4	2788.	20.9	2534.	26.9	2367.	28.6
2353.	28.0	2338.	28.9	2322.	30.1	1953.	30.4	1890.	32.5
1877.	34.0	1810.	35.9	1801.	35.3	1779.	35.9	1766.	34.6
1740.	32.2	1723.	30.2	1700.	23.4	1648.	0.0	1591.	0.0
1558.	0.0	1532.	0.0	1503.	0.0	1490.	0.0	1451.	0.0
1374.	2.4	1363.	2.5	1303.	7.1	1240.	0.0	1176.	15.2
1162.	22.0	1119.	28.6	1077.	17.4	1037.	20.0	1014.	20.9
992.	29.3	970.	31.3	915.	20.6	901.	20.0	870.	24.2
836.	17.9	756.	0.0	706.	3.0	696.	2.9	618.	20.0

END 70 PEAKS FOUND

CAUTION: PEAKS <0.1%T WILL BE ADJUSTED TO 0.1%T

result: Salicylanilide

X: 3401 4000- 600 1.00 4.26 35.17 T S3 M 4 DB U0C8

REF. VALUES : 4000 9.9 2000 19.9

CHEM: SOLID

3913.	9.3	3895.	9.0	3860.	9.2	3846.	8.8	3830.	8.9
3812.	8.5	3794.	8.9	3762.	9.3	3742.	8.2	3728.	8.6
3717.	9.0	3704.	8.8	3683.	8.5	3664.	7.9	3642.	6.8
3622.	6.7	3604.	6.4	3572.	5.6	3559.	4.9	3539.	5.0
3518.	4.6	3476.	4.4	3414.	4.6	3360.	5.3	3229.	7.6
3205.	8.1	3113.	9.6	3093.	10.0	2398.	16.0	2362.	12.4
2341.	15.8	2325.	16.1	1897.	20.1	1877.	20.0	1779.	20.5
1768.	21.2	1756.	20.8	1740.	20.5	1723.	19.7	1704.	19.9
1690.	20.0	1675.	20.1	1654.	19.4	1642.	18.9	1624.	20.5
1600.	22.2	1576.	23.8	1562.	21.9	1546.	20.8	1525.	22.7
1512.	21.7	1493.	23.5	1477.	24.3	1460.	23.6	1451.	24.8
1439.	24.8	1421.	24.7	988.	32.6				

END 58 PEAKS FOUND

result : benzidine yellow

X: 3401 4000- 600 1.00 3.16 100.00 T F 53 M 4 DB U0C9

REF. VALUES : 4000 88.7 2000 88.7

3941.	84.7	3912.	82.4	3896.	77.6	3877.	82.3	3859.	83.1
3847.	72.5	3831.	75.3	3812.	72.6	3794.	74.1	3775.	82.9
3762.	83.7	3742.	74.6	3729.	74.5	3717.	77.1	3704.	77.2
3683.	73.1	3666.	70.3	3642.	64.3	3623.	70.0	3604.	67.4
3592.	69.8	3581.	63.4	3559.	60.4	3539.	61.4	3518.	60.7
3495.	58.0	3467.	53.7	3454.	51.4	3437.	48.9	3389.	32.2
3286.	29.5	3172.	16.6	3138.	16.4	3052.	14.5	2860.	44.1
2840.	46.6	2748.	59.7	2719.	63.8	2396.	76.5	2362.	77.1
2352.	69.5	2341.	75.4	2327.	76.2	1966.	85.3	1952.	85.3
1929.	84.3	1917.	85.2	1897.	85.0	1877.	82.6	1868.	89.4
1852.	84.9	1835.	83.0	1819.	83.8	1810.	84.4	1799.	77.5
1791.	83.4	1779.	71.7	1768.	72.9	1754.	69.6	1738.	56.0
1723.	45.4	1703.	33.6	1690.	28.3	1673.	24.7	1658.	27.9
1641.	29.0	1604.	14.7	1581.	28.8	1562.	33.3	1546.	29.7
1523.	25.4	1511.	17.0	1489.	5.5	1457.	12.3	1444.	6.7
1397.	3.3	1352.	15.6	1340.	14.8	1334.	14.8	1166.	51.7
1114.	58.5	1076.	53.0	1028.	59.3	1007.	72.0	977.	81.5
929.	74.4	911.	74.9	828.	62.6	766.	19.5	687.	9.9
667.	51.0	636.	54.7	612.	51.9				

END 93 PEAKS FOUND

2-Naphthalene Carboxamide, 3 Hydroxy - N-(2,4-dimethylphenyl) -



X: 3401 4000- 600 1.00 3.16 100.00 T F S3 M 4 DB UOC10

REF. VALUES : 4000 90.4 2000 90.4

CHEM: LIQUID

3941.	86.3	3913.	84.4	3896.	80.9	3877.	84.8	3861.	84.9
3847.	76.2	3831.	77.8	3812.	75.6	3793.	76.0	3775.	85.1
3761.	85.7	3742.	76.8	3729.	77.8	3717.	79.9	3702.	79.7
3683.	76.6	3666.	72.0	3642.	67.1	3623.	73.2	3605.	69.2
3581.	65.4	3559.	62.5	3539.	63.1	3518.	61.7	3495.	59.3
3469.	54.5	3455.	52.3	3389.	32.6	3170.	16.7	3139.	16.6
3052.	14.6	2859.	44.8	2748.	60.7	2395.	77.8	2362.	81.4
2352.	75.4	2341.	78.4	2328.	78.3	1966.	86.9	1953.	87.2
1930.	86.4	1898.	87.2	1877.	86.0	1852.	87.1	1835.	85.6
1818.	87.1	1800.	80.2	1778.	75.8	1770.	77.1	1754.	71.6
1739.	60.1	1723.	49.2	1704.	34.6	1691.	29.6	1673.	25.0
1656.	29.4	1639.	30.8	1604.	14.8	1561.	34.9	1545.	29.9
1524.	26.6	1508.	18.7	1488.	5.4	1444.	7.0	1398.	3.2
1335.	15.2	1166.	52.6	1114.	59.5	1076.	54.1	1028.	61.0
1007.	73.3	976.	83.2	928.	75.8	911.	76.6	828.	64.6
766.	19.9	687.	10.0	668.	52.8	636.	55.7	612.	53.1

END 80 PEAKS FOUND

*Cumene.*

X: 3401 4000- 600 1.00 3.16 100.00 T F 93 M 4 08 U0C11

REF. VALUES : 4000 84.4 2000 84.4

CHEM: SOLID

3971.	81.8	3938.	81.7	3923.	81.2	3912.	78.6	3896.	76.5
3877.	78.5	3860.	78.4	3847.	74.1	3830.	75.2	3812.	75.0
3793.	76.2	3775.	76.9	3761.	78.7	3742.	73.0	3727.	73.0
3717.	76.2	3704.	71.8	3682.	74.2	3664.	73.0	3641.	70.7
3623.	71.4	3611.	72.5	3604.	72.1	3592.	71.3	3580.	68.7
3559.	66.2	3540.	67.8	3497.	66.3	3377.	67.3	3286.	65.4
3086.	63.1	3054.	47.6	3029.	61.2	3002.	65.0	2968.	72.3
2425.	79.2	2394.	82.3	2373.	84.9	2362.	75.0	2353.	78.8
2339.	77.2	2329.	76.9	2317.	81.5	1975.	81.7	1941.	81.5
1919.	82.9	1900.	86.1	1877.	86.1	1853.	84.9	1819.	83.4
1791.	89.0	1779.	88.7	1768.	90.6	1757.	89.3	1738.	88.2
1723.	84.9	1703.	90.0	1687.	82.0	1660.	4.1	1604.	14.5
1583.	24.3	1563.	52.2	1546.	63.3	1524.	69.2	1511.	71.7
1494.	74.2	1479.	84.5	1455.	17.4	1422.	71.9	1399.	79.9
1365.	89.3	1326.	12.0	1285.	3.8	1210.	56.0	1180.	36.4
1165.	46.2	1155.	42.5	1080.	43.3	1032.	57.6	1003.	41.0
975.	74.7	948.	23.2	939.	28.2	922.	19.2	869.	60.7
844.	71.1	816.	44.4	768.	17.9	709.	3.2	697.	5.7
639.	8.1								

END 91 PEAKS FOUND

*benzophenone*

X: 3401 4000- 600 1.00 3.16 100.00 T F 63 M 4 DB U0C12

REF. VALUES : 4000 85.9 2000 85.9

CHEM: LIQUID

3912.	85.4	3896.	84.1	3877.	85.1	3861.	85.5	3847.	77.1
3831.	81.2	3812.	79.3	3794.	80.6	3775.	86.5	3762.	87.3
3741.	83.1	3729.	79.2	3717.	83.6	3705.	82.3	3683.	76.2
3665.	77.4	3640.	68.6	3624.	63.2	3605.	64.4	3571.	61.5
3342.	8.0	3331.	8.1	2955.	3.2	2926.	3.4	2861.	5.0
2729.	42.5	2673.	48.0	2591.	58.3	2480.	72.1	2394.	74.9
2356.	67.6	2340.	71.3	2327.	75.9	2286.	79.2	2182.	82.3
2174.	82.3	2084.	85.0	1989.	84.9	1977.	87.1	1953.	88.6
1928.	86.3	1898.	85.6	1877.	86.2	1867.	91.2	1852.	88.2
1834.	86.3	1801.	82.8	1779.	85.2	1768.	89.1	1754.	86.3
1723.	38.2	1690.	75.4	1677.	80.3	1652.	76.1	1641.	74.2
1621.	75.3	1600.	79.4	1580.	81.3	1575.	81.3	1561.	75.7
1544.	69.1	1524.	60.4	1511.	51.2	1474.	8.2	1461.	9.1
1420.	19.8	1389.	11.1	1375.	13.0	1352.	23.8	1318.	23.0
1228.	34.1	1193.	45.2	1176.	36.6	1147.	20.8	1139.	21.0
1067.	19.7	1035.	20.6	953.	32.2	924.	38.3	905.	50.6
844.	38.8	772.	59.0	751.	59.2	729.	45.6	645.	40.9
621.	37.4								

END 86 PEAKS FOUND

*polyethylene glycol (600) mono laurate.*

X: 3401 4000- 600 1.00 0.40 100.00 T F 53 M 4 DB UOC13

REF. VALUES : 4000 98.0 2000 98.0

CHEM: SOLID

3912.	94.7	3895.	94.3	3877.	94.6	3860.	94.2	3846.	91.3
3831.	92.8	3812.	92.4	3792.	92.2	3763.	93.0	3742.	90.1
3728.	89.2	3717.	91.6	3704.	90.1	3682.	87.5	3664.	87.3
3642.	83.5	3622.	82.2	3605.	79.3	3576.	74.9	3558.	70.0
3516.	61.4	3382.	0.0	3281.	14.3	3198.	2.4	3187.	2.3
3101.	31.4	2982.	45.0	2962.	51.1	2929.	51.6	2881.	71.6
2852.	74.3	2780.	63.6	2695.	87.1	2418.	91.8	2361.	81.6
2325.	91.4	2216.	92.4	1879.	80.0	1852.	90.2	1831.	87.8
1818.	84.3	1775.	64.9	1701.	8.9	1687.	2.4	1674.	0.0
1653.	7.4	1641.	10.3	1613.	0.0	1563.	40.0	1543.	51.2
1524.	59.5	1511.	58.0	1462.	9.7	1433.	20.6	1414.	9.1
1393.	11.8	1378.	14.0	1357.	41.9	1299.	56.3	1242.	19.2
1113.	16.4	1019.	67.7	938.	25.2	826.	47.8	783.	48.4
624.	25.6								

END 66 PEAKS FOUND

CAUTION: PEAKS <0.1%T WILL BE ADJUSTED TO 0.1%T

*2 Methyl Propanamide.*



Refer to: 0316410001 - Cook County  
University of Chicago  
ILD005421136  
Compliance File

PRE-ENFORCEMENT CONFERENCE LETTER

CERTIFIED MAIL  
Return Receipt  
P #584 055 387

April 27, 1989

University of Chicago  
Attn: Sam Wang  
5735 South Ellis Avenue  
Chicago, Illinois 60637

Dear Mr. Wang:

On April 26, 1989 a Pre-Enforcement Conference (PEC) was held at the Maywood office of the Illinois EPA. Attending the conference were Sam Wang, Lab Safety Officer, University of Chicago; Clifford Gould, IEPA Land Pollution Control; and Carol Graszer, IEPA Land Pollution Control.

The PEC concerned apparent violations observed during a February 15, 1989 inspection of University of Chicago - Chemistry (U of C).

During this meeting Mr. Wang submitted an inspection schedule which appeared to have resolved the apparent violation 725.115(b).

The University of Chicago agreed to the following:

By May 5, 1989 submit to the Agency a copy of correspondence between U of C and IEPA regarding facility annual reports.

Send to the Agency a copy of the manifest prepared for the next shipment.

Send to the Agency a copy of a completed inspection log which includes the time of the inspection and the name of the inspector.

By May 26, 1989 submit to the Agency U of C's revised contingency plan, which includes a description of arrangements made with local police departments, fire departments and local hospitals; copies of letters concerning the above; personnel responses to fires, explosions or any unplanned release; and evidence of submittal of copies of the plan to police, fire departments and hospitals.

By June 30, 1989 submit to IEPA a revised waste analysis plan which shows how U of C will comply with 725.113(a), 725.117 and 725.277.

All submittals to the IEPA should be sent to:

Angela Aye Tin, Manager  
Technical Compliance Unit  
Compliance Section  
Illinois Environmental Protection Agency  
Division of Land Pollution Control  
2200 Churchill Road  
Post Office Box 19276  
Springfield, Illinois 62794-9276

with a copy to:

Illinois Environmental Protection Agency  
Division of Land Pollution Control  
1701 So. First Avenue, Suite 600  
Maywood, Illinois 60153  
Attn: Carol A. Graszer

If the Agency does not hear from you within ten (10) calendar days from the date of this letter, the Agency will assume that this document accurately reflects the agreements made during the meeting.

If you have any questions concerning the above, contact Carol Graszer at 312/345-9780.

Sincerely,

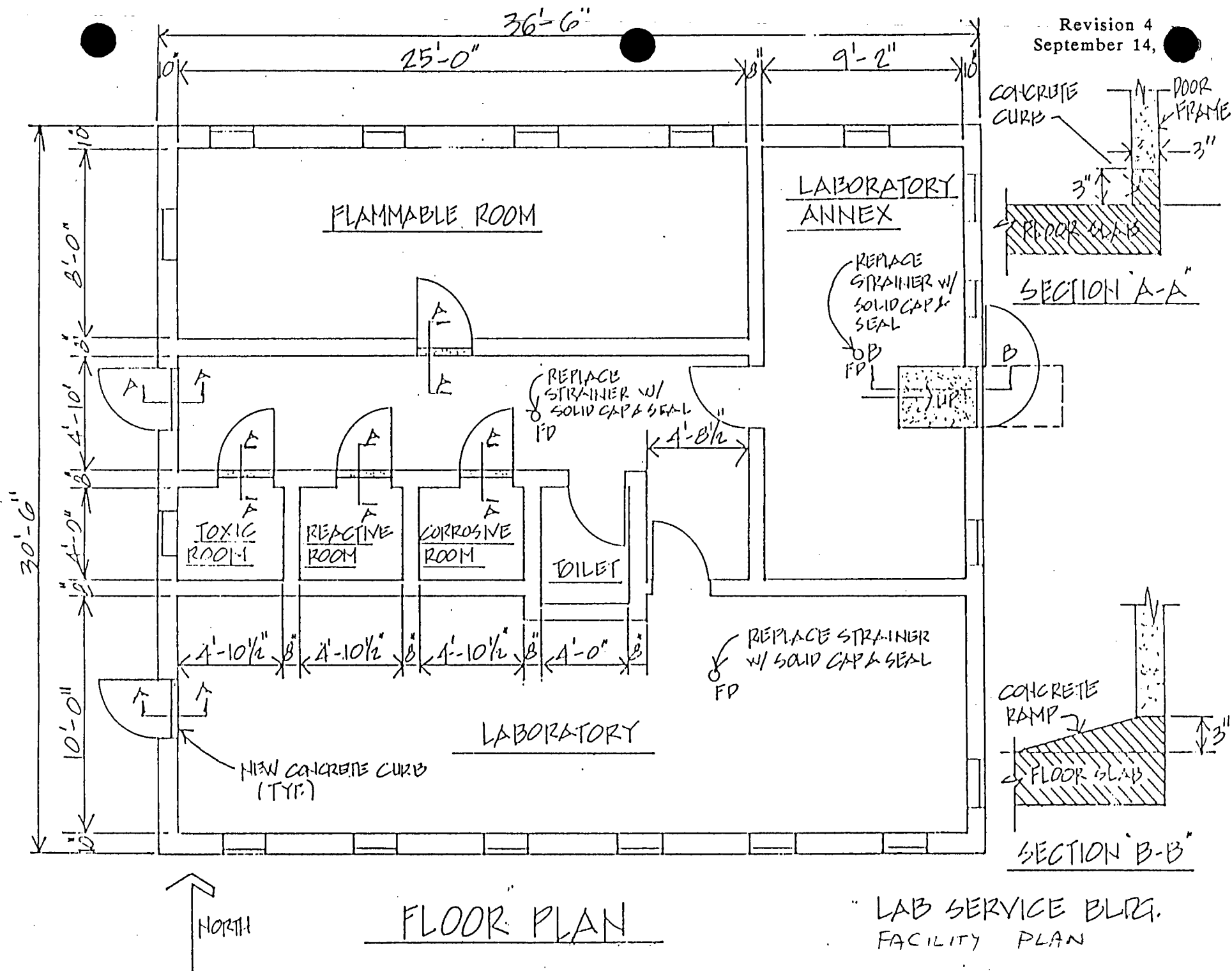


Clifford Gould, Northern Region Manager  
Field Operations Section  
Division of Land Pollution Control

CG:CAG:dfa:0936D

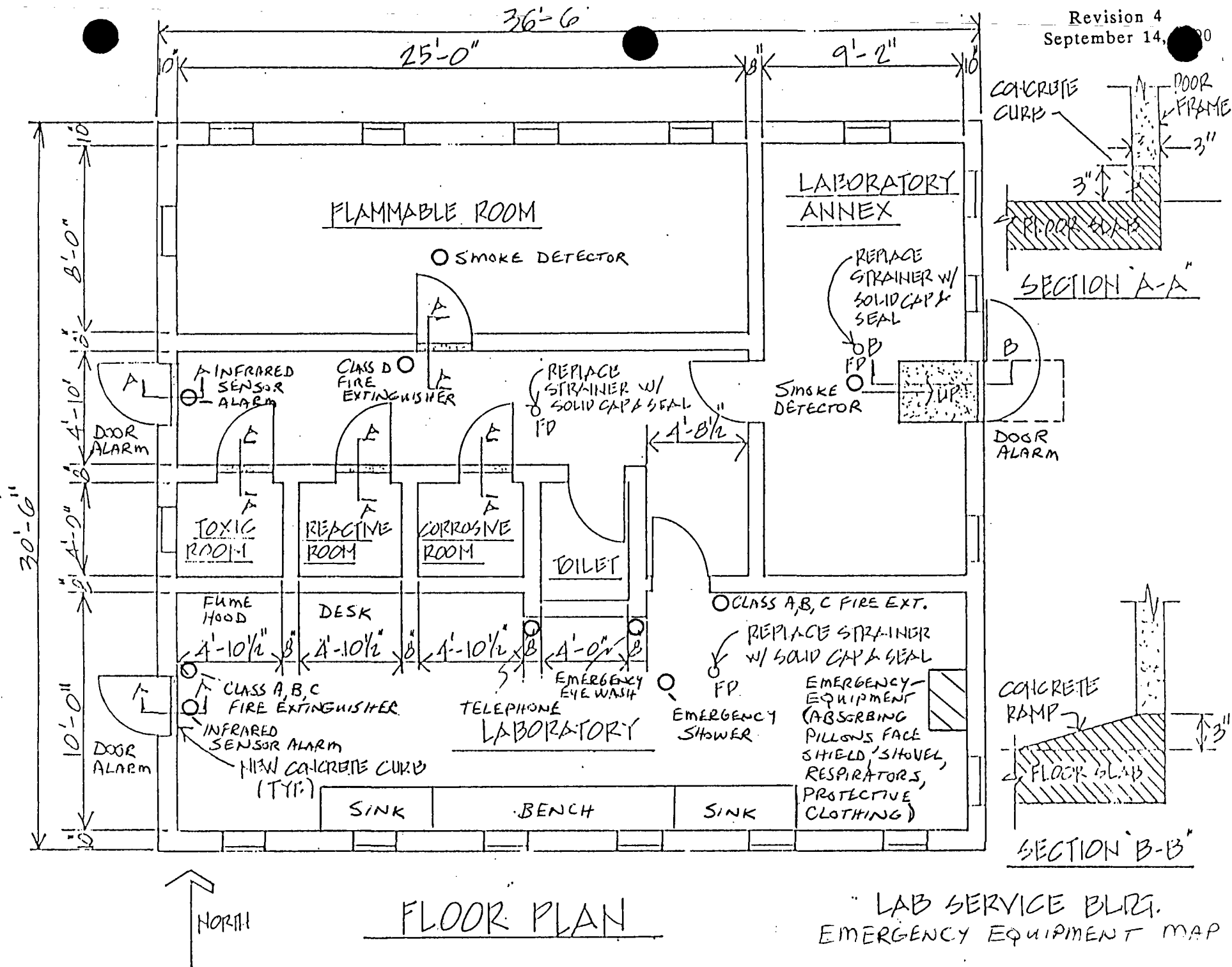
cc: Division File  
Northern Region  
Carol Graszer  
Brian White

Revision 4  
September 14,



FLOOR PLAN

LAB SERVICE BLDG.  
FACILITY PLAN





CONTINGENCY PLAN

PLAN - REVISED SEPTEMBER 14, 1990

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### Attachments

University Chicago Map

Laboratory Services Building Diagrams

Facility Diagram

Coordination Agreement Letters (7)

Procedures to Identify Chemical Spill/Assess Hazard

Authorization to Commit Resources

Diagram of Emergency Equipment

B. FACILITY DESCRIPTION

B-1 General Description:

The University of Chicago is located in Hyde Park on the South side of the City of Chicago. The approximate boundary extends from East 55th Street to East 61st Street and from Cottage Grove Avenue to South Lakeshore Drive. The University is an educational institution, operating a college, graduate department, professional schools, libraries, a press, and a number of educational and research departments and the affiliated University of Chicago Hospitals. The University has approximately 9,000 students at various academic levels, and approximately 1,100 faculty members and 8,000 supporting staff.

Waste chemicals are generated within the facility from several hundred laboratories involved in research and instruction. The facility maintains four solid waste management units.

The Laboratory Service Building is the primary hazardous waste processing and storage facility on the University. It is a one-story masonry structure constructed in 1986, located on the far southeast side of the University campus.

The Franklin McLean Research Institute Blockhouse is an accumulation point for the University of Chicago Medical Center and Cummings Life Science Center. Waste chemicals generated in the Medical Center and Cummings Life Science Center facilities are collected at the Blockhouse and transported to the Laboratory Service Building. The accumulation point is located at Room No. JO-83 in the Medical Center during the winter months. Moving the accumulation point inside the Medical Center during the winter eliminates safety hazards for people walking across the courtyard to the Blockhouse.

Room 401 in the George Herbert Jones Laboratory of the Chemistry Department is the accumulation point for chemicals generated in the Jones Laboratory complex. Hazardous chemicals are accumulated in the room and transported to the Laboratory Services Building.

A third accumulation point is located in the Research Institute in the receiving area where small quantities of waste chemicals are temporarily stored prior to transport to the Laboratory Service Building.

Waste delivered to the accumulation points are held a minimum time prior to removal to the Laboratory Service Building. None accumulate and hold wastes over 90 days.

Room 16 in the George Herbert Jones Laboratory was the hazardous waste accumulation point for Jones Laboratory complex until 1988 when a revised closure plan was accepted by Illinois EPA for the room. The university is in the process of closing this accumulation point.

B-2 Topographic Map:

B-2a General Map Requirements:

A map showing the facility and a distance of 1,000 feet around it is attached. The map includes contours, surface waters, surrounding land use, and map orientation. (See attachment.)

B-2b Additional Map Requirements for Land Disposal Facilities:

The University of Chicago has not previously and does not intend to operate any land disposal facilities. This paragraph does not apply.

B-3 Standards:

B-3a Seismic Standard:

40 CFR Part 264, Appendix VI, lists political jurisdictions which require demonstration of compliance with this section. The State of Illinois has no political jurisdictions which require compliance with this paragraph. The University of Chicago meets requirements of the seismic standard.

B-3b Flood Plain Standard:

The University of Chicago is in Zone-C for floods. Zone-C indicates it would be outside the 100 year flood plain. This information was obtained from FIRM rate map 170074-0090-B, June 1981, prepared by FEMA. The FIRM map is on page 15a.

B-3b(1) Demonstration of Compliance:

The University of Chicago facility is not located within the 100 year flood plain. The requirements of paragraph B-3b do not apply.

B-3c Other Location Requirements:

The University of Chicago has no land disposal facilities. This paragraph does not apply.

B-4 Traffic Information:

Waste chemicals are transported from accumulation points in Jones Hall, the Blockhouse and the Research Institute to the Laboratory Services Building, utilizing small electric carts. The following map shows traffic routes used to transport the material to the storage facility. Sidewalks are used for transporting the material, wherever possible, to avoid automobile traffic.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:

AUGUST 23, 1974

FLOOD HAZARD BOUNDARY MAP REVISIONS:

DECEMBER 31, 1976

FLOOD INSURANCE RATE MAP EFFECTIVE:

JUNE 1, 1981

FLOOD INSURANCE RATE MAP REVISIONS:

INDEX # 65435.10

UNIV. OF CHICAGO

57TH & STONEY ISLAND

CHICAGO, ILLINOIS

FIRM MAP# 170074 0000 B

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620, or (800) 424-8872.



APPROXIMATE SCALE

800 0 800 FEET



CONTINGENCY PLAN

Facility Name - Laboratory Service Building  
Location - 6041 South Blackstone Avenue  
Operator - The University of Chicago

1. General Information

Laboratory Service Building is a receiving point for waste chemicals from research and teaching laboratories of The University of Chicago. Chemicals are received at the facility, sorted and segregated, and stored until a disposal contractor comes on-site to lab pack them. Chemicals are normally received in original containers; usually glass or plastic bottles ranging in size from a few ounces to approximately one gallon. Flammable chemicals may be consolidated into 55-gallon drums for ease of storage and disposal.

The building is a one-story masonry structure without attachment to any other buildings. It is remotely located on the far southeast side of the university campus. The direct access route by vehicles to the building is from East 61st Street or Dorchester Avenue, then to Blackstone Avenue (See Figure 1 and Figure 2).

The building occupies an area of 31 ft. by 38 ft. with finished concrete floor. To the east side of the building there is a fenced yard with a concrete patio. Inside the building it is subdivided into several areas (rooms), including a laboratory, to store chemicals of the same compatibility (Flammable, Reactive, Toxic, and Corrosive) and each room is labeled as such. The floor plan and designation of each area is shown in Figure 3.

2. Emergency Coordinators

Primary Coordinator: Dr. Sam Wang  
6041 Blackstone Avenue or  
5747 S. Ellis Avenue  
The University of Chicago  
Chicago, Illinois  
Office Phone: 753-0829 or 702-7051

Non-releasble [REDACTED]

Alternate Coordinator: Dr. Roy Mackal  
Young Building, Room 307  
The University of Chicago  
Chicago, Illinois  
Office Phone: 702-3416

Non-releasble [REDACTED]

Duties of Emergency Coordinators:

- 1) Respond to an emergency call of notification.
- 2) Identify and assess the emergency situation and take immediate action, if appropriate.
- 3) Notify emergency response teams, including city Fire Department, Police Department, and medical facilities, etc.
- 4) Work closely with emergency response teams.
- 5) Take postemergency measures to prevent reoccurrence of the incident.

3. Notification

When fire, explosion, or any unexpected release occurs, the facility operator or personnel should immediately notify:

- 1) Personnel in the building by voice. The facility is small enough that a voice amplification system is not required.
- 2) Emergency coordinator(s) listed on Page 1.
- 3) Campus Security (Campus Police Department) by dialing 123 from a campus phone or 702-8181 from a non-campus phone.
- 4) City Fire Department (Same phone numbers as Campus Security).
- 5) National Response Center (800)424-8802.
- 6) IL. Emergency Services and Disaster Agency (800)782-7860.
- 7) IEPA Emergency Response Unit (217)782-3637.
- 8) IEPA Division of Land Pollution (217)782-6762.

4. Control Procedures

- 1) City Fire Department will respond immediately to any fire, explosion or release of hazardous materials. The Fire Department will contain and control any fire involved at the facility with the assistance of the emergency coordinator. Spill releases will be controlled through use of absorbent material such as vermiculite and spill control pillows.
- 2) Spill material with the absorbent will be picked up and placed in appropriate storage containers for disposal through The University of Chicago's normal waste disposal contractor. The facility operator will remove all waste from the spill area for ease of clean-up. The facility will not accept new waste until the spill or leak has been cleaned up and controlled.
- 3) All equipment and containers will be decontaminated or replaced prior to resuming normal operation in the Laboratory Service Building following conclusion of emergency response and clean-up procedures.

## 5. Emergency Equipment

An emergency shower and eyewash are located by the doorway leading from the office/chemical sorting area to the storerooms.

Two Class ABC fire extinguishers are located in the office/chemical sorting room and one Class D fire extinguisher is located in the hallway between the storage rooms. The facility is equipped with a smoke detector system that alarms directly at the Campus Security Office.

Half-face and full-face respirators suitable for organic vapor and acid gases are located in the office/chemical sorting room. The facility operator also has respirators located in his office.

Lab coats, face shields, and rubber gloves are located in the chemical sorting area.

## 6. Evacuation Plan

Evacuation of the facility will be initiated by voice signal to personnel inside. Evacuation from the area will be made by Dorchester Avenue north to Midway Plaisance. Alternate evacuation route would be to go south on Dorchester Avenue.

## 7. Coordination Agreement Arrangements

The University of Chicago maintains its own campus security (Campus Police Department) and medical facility (The University of Chicago Medical Center). Arrangements have been made with the following response teams in case of an emergency. Copies of this Contingency Plan were sent to each agency.

- 1) Campus Security  
5555 South Ellis Avenue  
Phone: 702-8190
- 2) The University of Chicago  
Medical Center  
Emergency Care  
5815 Maryland Avenue  
Phone: 702-6250
- 3) City Fire Department  
Engine No. 60  
1150 East 55th Place  
Phone: 288-2636



- 4) City Fire Department  
Engine No. 63  
1405 East 62nd Place  
Phone: 493-0833

8. Required Reports

A follow-up report detailing the incident, emergency response, clean-up, and actions taken to prevent reoccurrence will be prepared and submitted to the Illinois Environmental Protection Agency within 15 days of occurrence. All records concerning the incident and report will be maintained by the facility operator until three years after final closure of the Laboratory Service Building.

9. Hazard Evaluation

The majority of the chemicals received at the facility are unused portions of raw chemicals in the original container or chemicals used in experiments where the constituents are known. If chemicals are received that have unknown qualities or constituents, analysis is performed by the contractor performing disposal of the chemicals. Unknown chemicals are not normally received at the facility; the quantity averages approximately 20-30 small bottles per year.

Following are typical chemicals stored in the Laboratory Services building. A complete list is not feasible since it varies by the type of chemicals being used in the University laboratories. The listing is broken down by storage area within the facility.

Flammable Storage Room: [Basis for designation - 40 CFR 261.21]. Chemicals stored in the Flammable Storage Room include ethers, toluene, benzene, hexane, ketones, alcohols, used silica gel, phenyls, hydrazine waste, xylene, methylene chloride, pyridine, and various other flammable materials. Containers range in size from small bottles containing only a few grams of material to gallon or larger size containers.

Toxic Storage Room: [Basis for designation - 40 CFR 261.24]. Chemicals stored in the Toxic Storage Room include cyanides, lead salts, chromates, bromine, mercury salts, chromium waste, and miscellaneous other toxic chemicals. Container sizes range from small size containing only a few ounces to one gallon bottles.

Reactive Storage Room: [Basis for designation - 40 CFR 261.23]. Chemicals stored in the reactive storage room include ether anhydrous, silane waste, phosphorus pentoxide, acid halides, alkali metals, and miscellaneous other reactive chemicals. Bottles range in size from small containers holding only a few ounces to one gallon jars.

Corrosives Room: [Basis for designation - 40 CFR 261.22]. Chemicals stored in the corrosives room include hydrochloric acid, potassium hydroxide, ammonium hydroxide, sulphuric acid, chromic acid, and miscellaneous other corrosive chemicals. Containers range in size from pint jars to one gallon bottles.

Containers of waste are received at the facility in the main sorting/testing room. Waste materials are categorized through MSDS screening techniques or sample analysis to determine proper storage location within the facility.

Chemicals are logged into a log book upon receipt at the facility with the following information: accumulation start date, source laboratory name, quantity, material, type of storage container used, if material was consolidated with other waste, and storage room. Consolidated wastes are indicated in the logbook by a check mark. Chemical containers with missing or partial labels are labeled appropriately. An example of the log book is included in the attachments.

The facility contains four separate storage locations for various chemicals. This allows for segregation of non-compatible chemicals and increased efficiency in disposal.

The flammable storage room contains five metal shelf units with five shelves per unit, and 55-gallon drums for consolidation of flammable liquids. Chemical containers are stored on shelves in such a manner that labels are clearly visible from the front. Larger bottles are placed on lower shelves and smaller containers are placed on upper shelves. This allows a safety measure for minimizing spillage. Large containers that may not fit on the shelves are set on the floor. Storage shelves and drums are all placed along walls. Drums are not stacked. Estimated storage is 100 gallons.

The toxic storage room contains one metal shelf unit with five shelves placed along the south wall. Containers are primarily one gallon glass bottles which are placed on the lower shelves. Smaller containers are placed on upper shelves. Estimated storage is 25 gallons.

The reactives storage room contains one metal shelf unit with five shelves placed along the south wall. Containers are primarily one gallon glass or plastic bottles which are placed on lower shelves. Smaller containers are placed on upper shelves. Estimated storage is 25 gallons.

The corrosives room contains one metal shelf unit with five shelves placed along the south wall. Container sizes are primarily one gallon glass jars and a five gallon plastic container stored on lower shelves. Smaller bottles such as pint glass jars are stored on upper shelves. Estimated storage is 25 gallons.

Waste containers remain in the storage areas inside the facility until removed by the licensed waste management contractor.

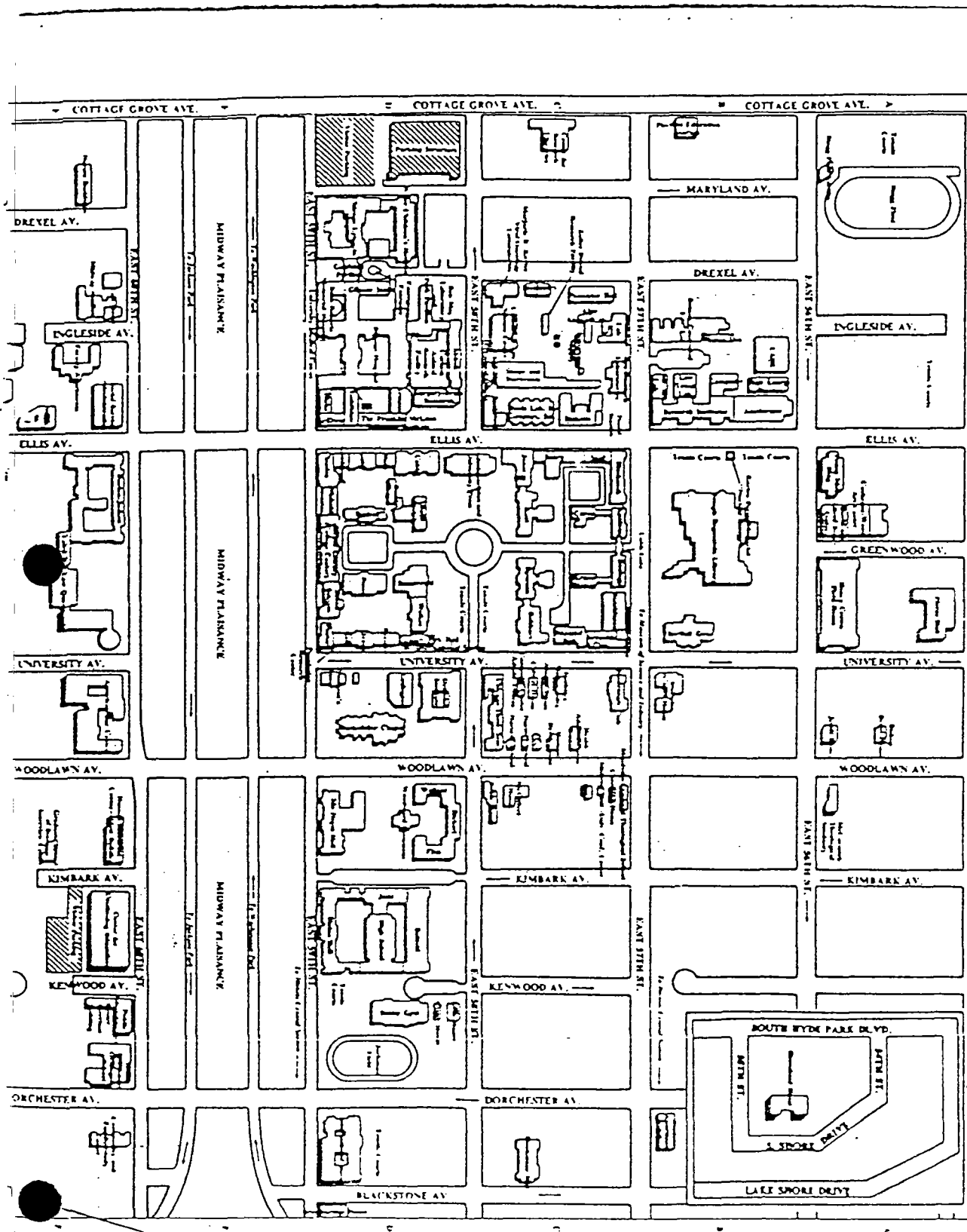
Chemicals are transported within the facility by hand carrying. Containers are small and light enough that no special handling equipment is required.

Possible hazards to human health or the environment that may result from a release, fire or explosion should be confined within the laboratory service building property. No effects would be expected to occur off-site, due to the small volume of chemicals stored, the capacity of the containment system to confine releases inside the building, the remote location of the building and the concrete construction of the building and its ability to withstand strong winds, rains, etc. Also, the building is not located in a flood plain. The dilution of airborne chemical waste in the air and consumption of airborne waste by fire or explosion would be expected to be great enough so as not to cause migration of chemicals off-site.

There are numerous potential health effects which may occur to someone on-site in case of a release, fire or explosion. Effects would be expected to occur through skin contact, inhalation or ingestion. The exact effects are too numerous to list due to the many different types of potentially stored wastes. Potential effects would be determined upon waste identification and evaluation by the emergency response team.

Determination will be made by the emergency coordinator, after consultation with all emergency response personnel, whether the release, fire or explosion could threaten human health or the environment. No effects would be expected for the reasons described above. However, each case will be evaluated separately for type and amount of release, physical damage to the containment system and the building, and current meteorological conditions by all emergency response personnel to determine if evacuation of local areas may be advisable. The local fire and police departments will be notified if evacuation of local areas is advisable.

Fig. 1 University of Chicago Map

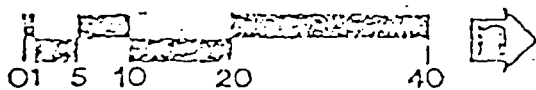
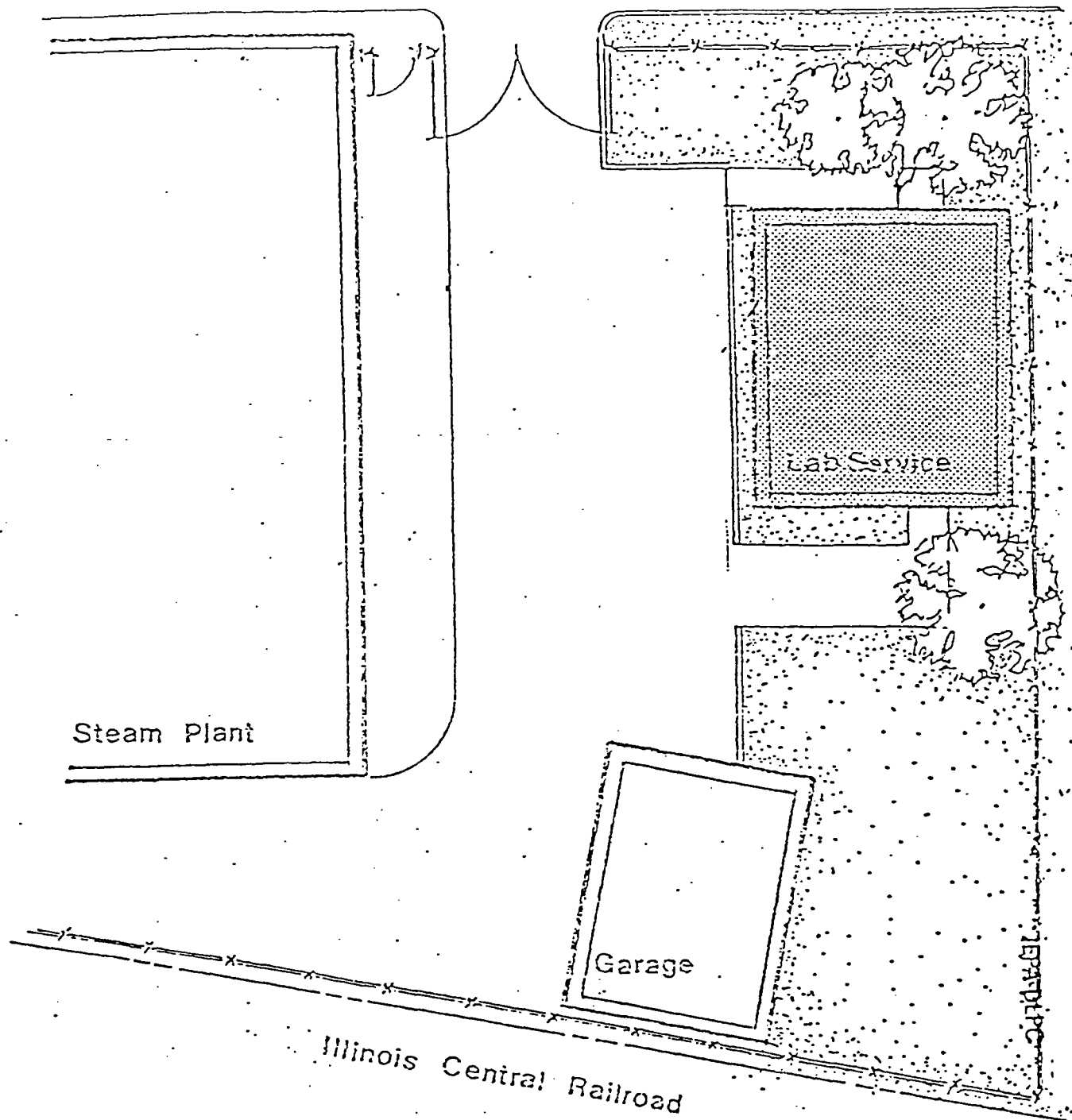


Laboratory Service Building

Revision 4  
September 14, 1990

Fig. 2 Laboratory Service  
Building

S. Blackstone Ave.



Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRESIDENT  
PHYSICAL PLANNING

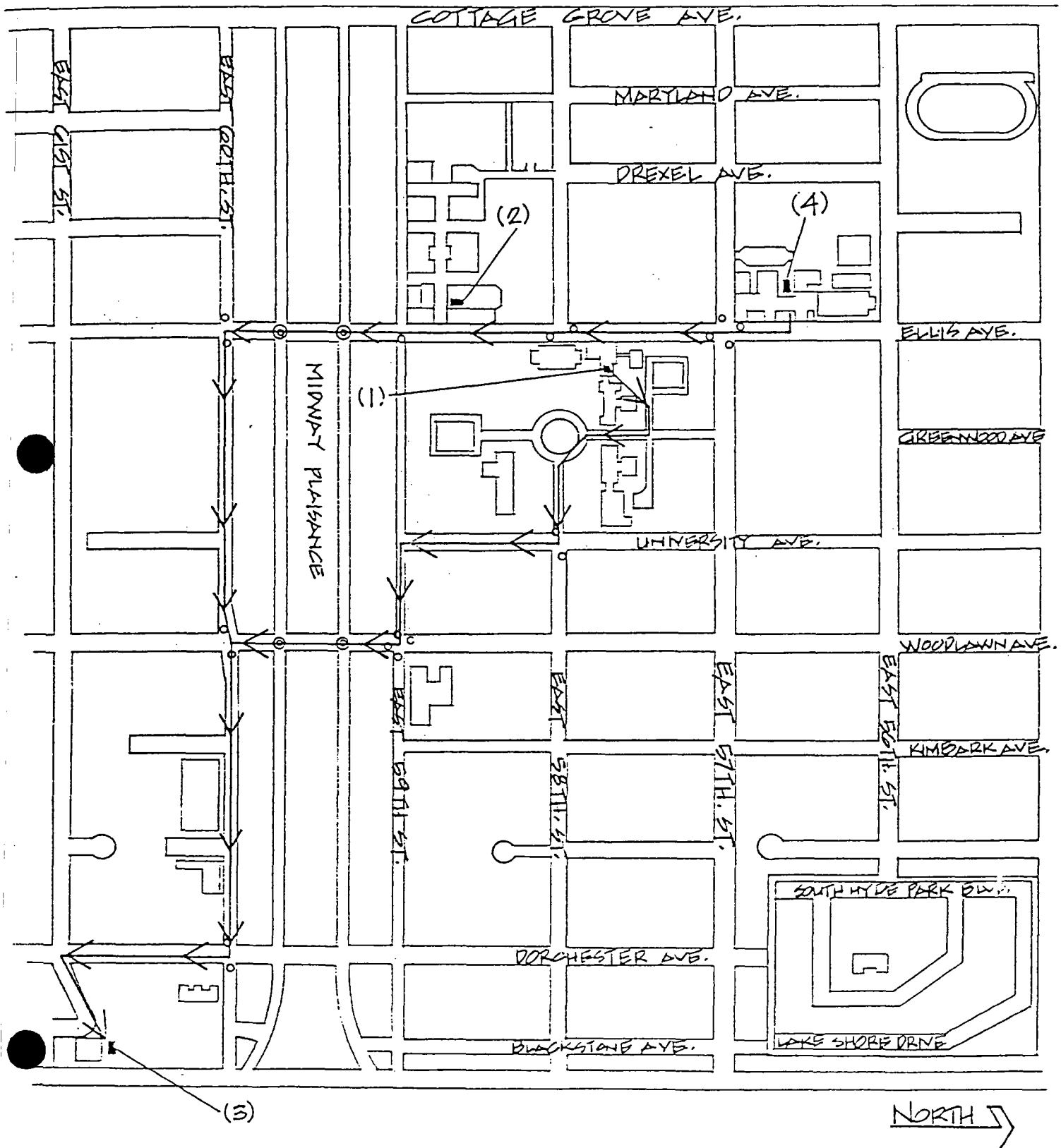
# HAZARDOUS WASTE TRANSPORT ROUTE

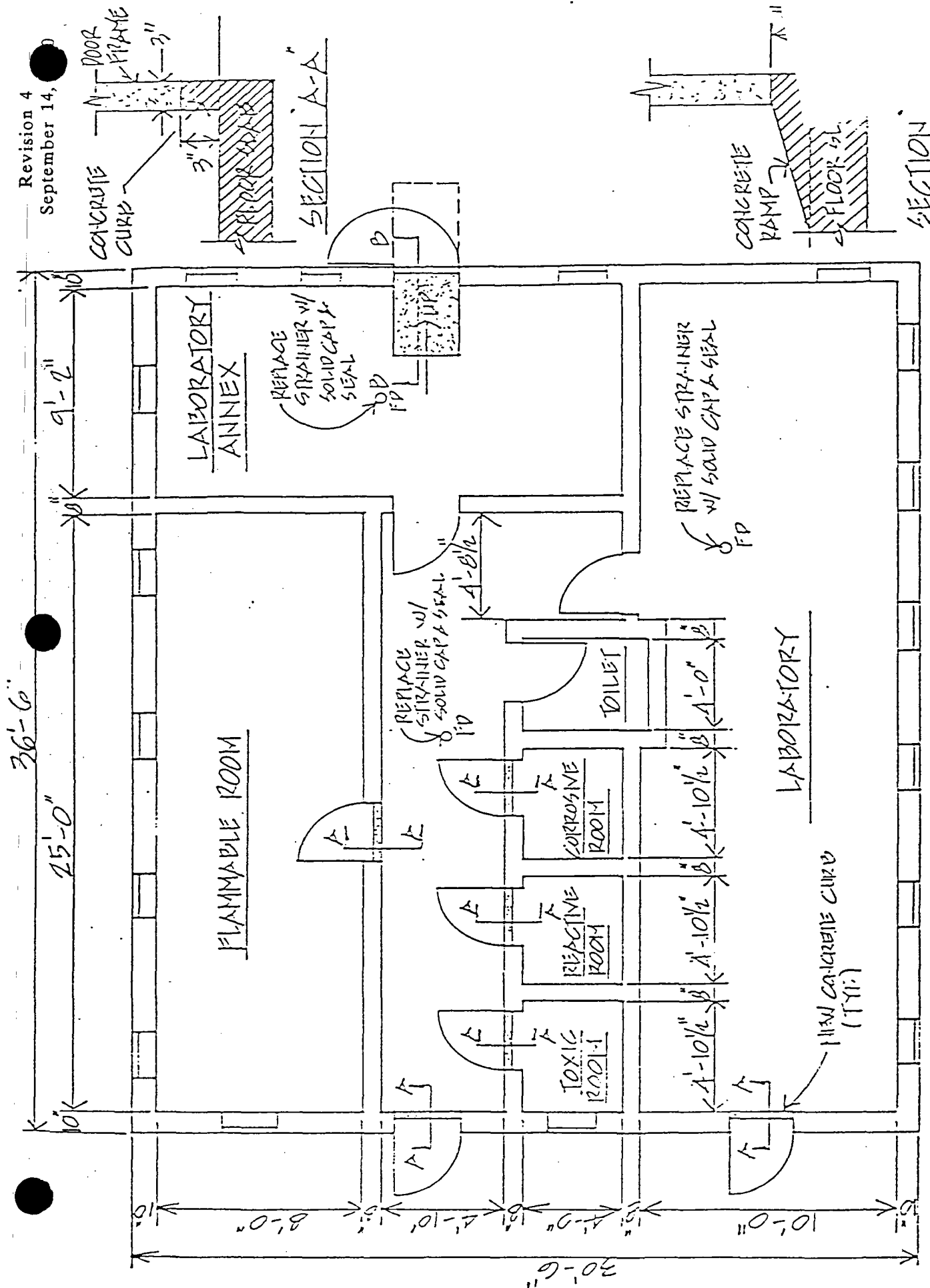
Revision 4  
September 14, 1990

## UNIVERSITY OF CHICAGO MAP

- (1) GEORGE HERBERT JONES LABORATORY
- (2) FRANKLIN MCLEAN RESEARCH INSTITUTE BLOCKHOUSE
- (3) LABORATORY SERVICE BUILDING
- (4) RESEARCH INSTITUTE

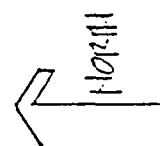
- STOP SIGNS  
⊙ TRAFFIC LIGHTS





" LAB SERVICE BLDG.  
FACILITY PLAN

FLOOR PLAN





### WASTE ANALYSIS PLAN

Facility Name - Laboratory Service Building  
Location - 6041 South Blackstone Avenue  
Operator - The University of Chicago

Laboratory Service Building is a receiving point for waste chemicals from research and teaching laboratories on university campus. Those laboratories generate hundreds of different variety of chemicals in small quantities, ranging from a few ounces to a few pounds. They are mostly unused portions of pure chemicals in original glass bottles with labels bearing the name of the chemical. Some of them are U.S. EPA listed hazardous chemicals with P (acute hazardous waste) and U (toxic waste) designations.

Chemicals entering the storage area are identified and sorted according to their compatibilities before a licensed disposal contractor labpacks them for manifested off-site disposal. The chemical identity is compared to those listed in 40 CFR Part 264, Appendix V. Determination is made of which compatibility group listed in 40 CFR Part 264, Appendix V the chemical would belong, and which group the chemical may be incompatible with. Chemicals of different compatibility, i.e., flammable, toxic, water-reactive, and corrosive chemicals, are segregated into different storage rooms. Initial waste analysis is a compatibility test based upon the knowledge and literature information of the chemical in question. Equally important, a group of other tests are being performed to reassure the identity of the chemical in the sorting process.

Initial identification will be performed using Material Safety Data Sheet information obtained from the file of chemicals maintained on the Sigma-Aldrich MSDS CD-ROM computer program in the facility, and chemical references (i.e., Merck Chemical Dictionary). The Sigma-Aldrich MSDS program, compact diskette is part of the Part B application. This will be updated in the application every six months, following the guidelines for a Class 1 Permit Modification described in 35 IAC Part 703.280 and 703.281. Details on how to operate the program are attached to the WAP. This initial identification procedure is also used for known spilled waste.

In the event the data is not available from review of the MSDS or other chemical references, the waste will be considered unknown and a general screening will be performed prior to placing the waste chemical in temporary storage and sending a sample for analysis using approved EPA methodology. The screening will be done as follows:

1. Flash-Point Test

Flammability of volatile organic liquids (solvents) is determined using a flash-point test. An open cup flash-point test apparatus is used and the ignition temperature of the liquid is noted while heating the liquid.

2. Corrosion Test

The pH of acids and bases is determined using a pH meter or test papers (e.g., Hydrion paper) if solutions exhibit a pH of less than 2 or greater than 12.5, they are classified as corrosive chemicals.

3. Reactivity Test

The substance is checked for reactivity with water or acidic water. Testing involves adding a small amount of chemical to water to acidified water and observing any reactivity that process heat, fume or gas.

4. Organic-Inorganic Test

The test is performed using the chemical principle "like dissolves like". The test is performed by adding the substance to a homogeneous mixture of organic solvents (such as acetone, benzene, ether, alcohol, etc.) and observing the solubility. If the substance dissolves and the solution remains single-phases, it is likely to be an organic compound. In order to test for inorganic compounds, the chemical is added to water to check for solubility.

5. Physical Test

The substance may be characterized by phase, color, viscosity, crystalline form, and boiling point, etc. This tests provides to be very effective in general screening.

Wastes of unknown compatibility cannot be stored with any other waste in the hazardous waste storage areas. In addition, only one type of unknown can be stored together at any one time. Unknown waste types will be temporarily stored in one area, but segregated from each other by permanently installed ceramic or glass containment trays, with walls three-fourths the height of the largest container, and the containers sealed to prevent release and mixing in the event of a spill. The area used is a fume hood with a sealed drain and base, specifically designated for this purpose in the facility.

Analytical procedures described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)" and "Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Toxicity, Characteristics Revision" published in the Federal Register, March 29, 1990 (55 FR 11798) and June 29, 1990 (55 FR 26986), are used for identifying unknown chemicals by the testing laboratory. These include:

<u>Parameter</u>	<u>Method</u>
Corrosivity	SW-846 (#9045)
Ignitability	SW-846 (#1010)
Reactivity	SW-846 (Section 7.3.3.2 and 7.3.4.1)
Toxicity (TC)	55 FR 11798, 55 FR 26986 (TCLP)

Unknown wastes will be relocated from temporary storage to the segregated storage rooms, after comparing the chemical analysis results with the materials listed in 40 CFR Part 264, Appendix V, to determine compatible groups.

Unknown spilled waste will be tested using the general screening methods described above and placed in temporary storage. The waste will be treated as an unknown, analyzed using the approved EPA methodology outlined above, and segregated into the appropriate storage room upon receipt and review of the sample results.

#### Safety Equipment

To make sure the following equipment is in good working condition:

- A. Faceshields
- B. Gloves
- C. Respirators
- D. Fire Extinguishers
- E. Emergency Shower
- F. Eyewash
- G. Spill Response Equipment
- H. Alarm Systems
- I. Telephone Communications

#### 7. Required Reports

A follow-up report detailing the incident, emergency response, cleanup, and actions taken to prevent reoccurrence will be prepared and submitted to the Illinois Environmental Protection Agency within 15 days of occurrence. All records concerning the incident and report will be maintained by the facility operator until three years after final closure of the Laboratory Service Building.

**The Sigma-Aldrich Library  
of Chemical Safety Data, Edition II,  
2-volume set**



Catalog No.  
Z16,000-8

Condensed safety data  
on over 14,500 Sigma and Aldrich chemicals  
representing 24,000 Sigma and Aldrich  
products



Revision 4  
September 14, 1990

**A**

**Sigma-Aldrich Material Safety Data Sheets  
CD-ROM Version**

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## SECTION 1: INTRODUCTION

The original Sigma-Aldrich Material Safety Data Sheets CD-ROM contains over 34,000 full-text Material Safety Data Sheets (MSDS), most with chemical structures. Each quarterly update will contain more data sheets and additional new data. The search software is intuitive and easy to operate via keyboard keys and/or mouse. The use of a mouse is supported but not required. Data can be viewed on-screen, printed or saved as text or graphic files on a separate disk.

This CD-ROM package contains the following components:

- A compact disc containing the data and structure files.
- Floppy disks containing the MSDS program and installation software. Please read the file named **README.TXT** which notes any corrections or programming changes since the printing of this manual.
- This reference manual.

### Important!

The compact disc is labeled with an expiration date after which the disc should no longer be used. As a subscriber to the Sigma-Aldrich MSDS program, you will receive quarterly updates of the database and search software. Search software must be installed with each update. New releases of the software and compact disc are not compatible with expired versions.

## SECTION 2: INSTALLATION

### CD-ROM Reader

This manual does not contain information on setting up the CD-ROM system. Each CD-ROM reader should include a set of installation instructions, the MS-DOS extensions provided from the drive supplier and a High Sierra driver. The Sigma-Aldrich MSDS CD-ROM disc is manufactured in the High Sierra format.

### MSDS Program Screens

You may choose between two types of MSDS program screens for searching and viewing records. Please consult **Section 3: GETTING STARTED** for information about both the **MENU** and **FUNCTION KEY** versions.

### Software Installation on Hard Disk Systems

1. Turn on the CD-ROM reader, then turn on the PC. Make sure the CD-ROM drivers have loaded. A message will appear on the PC screen to indicate this.
2. Put the Sigma-Aldrich MSDS CD-ROM disc into the reader, label side up. **Important!** Handle the disc with care to avoid possible damage (e.g., scratches).

3. Put the MSDS installation disk in drive A:, at C:> type A:INSTALL, then press the [return] key. The **INSTALL** program will prompt you for the information it requires during the installation process.

**Important Note: The INSTALL disk must be in drive A:.**

The **INSTALL** program will perform the following functions:

- Install a printer driver. Use the keypad keys to move the highlight bar in the printer list to your model, then press [return] to install the driver.
- Create a subdirectory on the hard disk named **MSDS** and copy the program files to the MSDS directory.
- Add the lines to the CONFIG.SYS file **DEVICE=ANSI.SYS, FILES=20 and BUFFERS=20.**

**The USER must perform the following function:**

- Copy the file **ANSI.SYS** from your DOS disk to the *Root Directory* on the hard disk. The MSDS program requires this DOS file for proper operation.

4. Reset the computer by pressing the keys [Ctrl] [Alt] [Del] simultaneously. The system will now be ready for use.

## Changing Printers

If the printer on the system is changed and a new driver is required, run the **PRINTER** program. At the DOS prompt C:\MSDS type **PRINTER**, then press [return].

## Software Installation on Floppy Disk Systems

To run the Sigma-Aldrich MSDS program from a floppy disk system, make a *bootable* CD-ROM system disk and a *working copy* of the MSDS program disk. Follow the manufacturer's instructions that came with your CD-ROM drive for making a system disk, then use the procedure below to modify the CD-ROM system disk. Use the MSDS **INSTALL** program to make a working copy of the search program on a floppy disk.

1. Turn on the CD-ROM reader.
2. Put the *bootable* CD-ROM system disk in drive A: and turn on the PC. Make sure the CD-ROM drivers have loaded. A message will appear on the PC screen to indicate this.

*Edit the bootable CD-ROM system disk as follows:*

- Copy the DOS file **ANSI.SYS** to the root directory on the disk.
- Add the statements **DEVICE=ANSI.SYS, FILES=20** and **BUFFERS=20** to the **CONFIG.SYS** file on the disk. Use the DOS **EDLIN** command or a word processor to do this.
- 3. With the modified *bootable* CD-ROM system disk in drive **A:**, reset the computer by pressing the keys **[Ctrl] [Alt] [Del]** simultaneously.
- 4. Put the MSDS installation disk in drive **A:** and a blank formatted disk in drive **B:**. At the **A:>** prompt type **INSTALL**, then press the **[return]** key. The **INSTALL** program will prompt you for the information it requires during the installation process. A dual floppy disk system is *required* when using the **INSTALL** program to make a working copy of the MSDS search program.
- 5. Put the working copy of the MSDS program in drive **A:**. The system is now ready for use.

#### **Important!**

If the computer is turned off or a system reset is necessary, boot the computer with the CD-ROM system disk in drive **A:** before running the MSDS search program. This will load the CD-ROM reader drivers and modified **CONFIG.SYS** file required for MSDS program operation.

## **SECTION 3: GETTING STARTED**

### **Starting The Program**

To start the MSDS search program from the hard disk, at **C:\MSDS** type **MSDS** and press the **[return]** key. For floppy disk systems, at **A:\MSDS** type **MSDS** and press the **[return]** key.

### **Copyright Screen**

An introductory screen will appear followed by a copyright statement. Please read the statement carefully before you push the **[F3]** key to acknowledge your acceptance of the terms and conditions of this software and use of the database.

### **MSDS Search Screen Layout**

The MSDS search screen will appear as shown (please refer to *Figure 1* if you are a **MENU** user or *Figure 2* if you are a **FUNCTION KEY** user).

#### **NOTE:**

This manual refers to two MSDS interfaces: **MENU** and **FUNCTION KEY** based. Please use this manual accordingly.



MSDS Search Screen Layout - Menu Version

Command Menus

Sigma-Aldrich Catalog Number

Q FILE SEARCH MISC SIGMA/ALDRICH CORPORATION P3395

IDENTIFICATION

PRODUCT #: P3395 NAME: PENTACHLORONITROBENZENE  
CAS #: 82-68-8  
MF: C6CL5N1O2

SYNONYMS

AVICOL \* BATRILEX \* BENZENE, NITROPENTACHLORO- \* BOTRILEX \* BRASSICOL  
\* EARTHICIDE \* FARTOX \* FOLOSAN \* FOMAC 2 \* FUNGICLOR \* GC 3944-3-4 \*  
KOBU \* KOBUTOL \* KP 2 \* NCI-C00419 \* OLPISAN \* PCNB \*  
PENTACHLORONITROBENZOL (GERMAN) \* PENTACHLORONITROBENZENE \* PENTAGEN \*  
PRHNB \* QUINTOCENE \* QUINTOZEN \* QUINTOZONE \* RCRA WASTE NUMBER U185 \*  
SANICLOR 30 \* TERRACHLOR \* TERRACLOR \* TERRAFUN \* TILCAREX \* TRI-  
PCNB \* TRITISAN \*

TOXICITY HAZARDS

RTECS NO: DA6650000

Chemical Structure

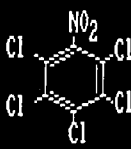


Figure 1

MSDS Search Screen Layout - Function Key Version

Sigma-Aldrich Catalog Number

Copyright 1989 SIGMA/ALDRICH CORPORATION P3395

IDENTIFICATION

PRODUCT #: P3395 NAME: PENTACHLORONITROBENZENE  
CAS #: 82-68-8  
MF: C6CL5N1O2

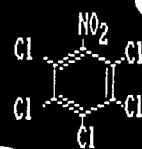
SYNONYMS

AVICOL \* BATRILEX \* BENZENE, NITROPENTACHLORO- \* BOTRILEX \* BRASSICOL  
\* EARTHICIDE \* FARTOX \* FOLOSAN \* FOMAC 2 \* FUNGICLOR \* GC 3944-3-4 \*  
KOBU \* KOBUTOL \* KP 2 \* NCI-C00419 \* OLPISAN \* PCNB \*  
PENTACHLORONITROBENZOL (GERMAN) \* PENTACHLORONITROBENZENE \* PENTAGEN \*  
PRHNB \* QUINTOCENE \* QUINTOZEN \* QUINTOZONE \* RCRA WASTE NUMBER U185 \*  
SANICLOR 30 \* TERRACHLOR \* TERRACLOR \* TERRAFUN \* TILCAREX \* TRI-  
PCNB \* TRITISAN \*

TOXICITY HAZARDS

Function Key Icons

Chemical Structure



HELP	SEARCH	SEARCH
F1	CAS	PROD
SEARCH		SEARCH
NAME	F4	FORM
EXPORT	PRINT	PRINT
F7	MULT	F9
PAGE	PAGE	EXIT
DOWN	UP	DOS
		F10

Figure 2

## SECTION 4: PROGRAM OPERATION

### Performing Searches

The Sigma-Aldrich MSDS CD-ROM is searchable by:

- |                                   |                |
|-----------------------------------|----------------|
| • Sigma or Aldrich product number | • Name/synonym |
| • Formula                         | • CAS number   |

The search option operates in this manner:

1. Prompts for the type of search
2. Prompts for the required information
3. Displays the corresponding MSDS record

### Command Selection

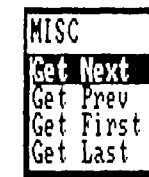
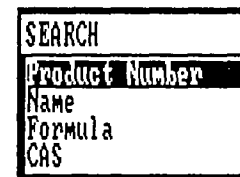
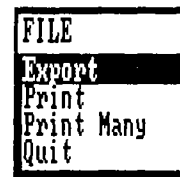
The MSDS search program accesses information through the use of menus or function keys, depending on which program interface is installed.

If you are a **MENU** user, please refer to **Exhibit 1A**.

If you are a **FUNCTION KEY** user, please refer to **Exhibit 1B**.

### Exhibit 1A - MENU VERSION

This version of the MSDS search program uses the four main command menus shown.



### Shortcut Key Commands

All of the command menus and options have shortcut keys which usually correspond to the first letter in the word. Press [return] to open the **HELP** menu, [F] for **FILE** menu, [S] for **SEARCH** menu and [M] for **MISCELLANEOUS** menu. This also works for choosing menu options, [Q] to **QUIT**, for example. The only exceptions to the first letter rule are for those *two-word* options which have the *same* first word. In this case, the first letter in the *second* word is the shortcut key. Press the [Escape] key to cancel or close the menu.

**Mouse Users:** To open a menu, *point and click* the menu title, then *click* the menu option to select it. *Right-click* to cancel or close the menu.

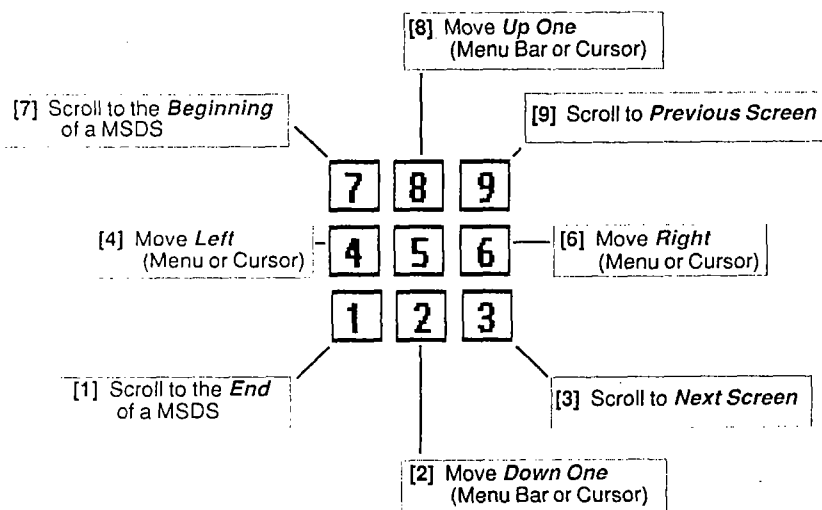
Note: Use of a mouse is optional.

Menu options and text paging can also be accomplished using the numeric keypad as shown on the following page.

### Exhibit 1A cont. - MENU VERSION Using the Keypad Keys

The numeric keypad may be used to select command menus, move menu highlight bars and scroll MSDS records in various ways. If a mouse is available on the system, these functions are handled in a *point and click* fashion.

#### The PC KEYPAD



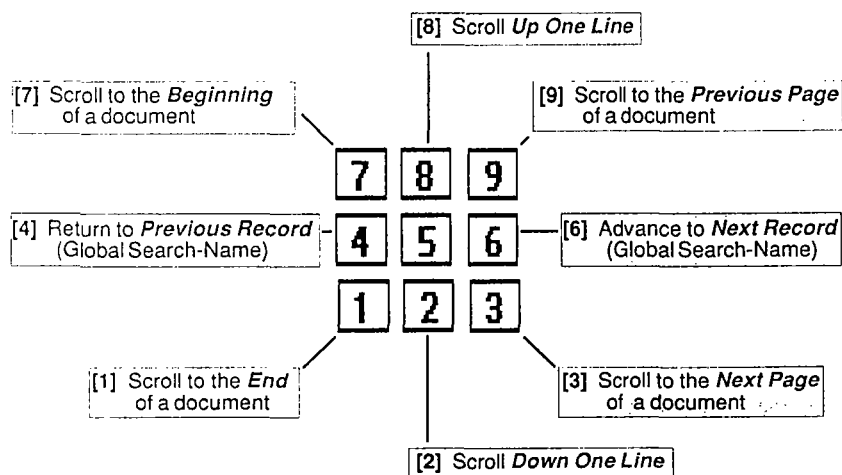
### Exhibit 1B. FUNCTION KEY VERSION

Key	Command	Description
F1	Help	Display a summary of command options and data entry rules
F2	CAS Number	Search for an MSDS by CAS number
F3	Product Number	Search for an MSDS by Sigma or Aldrich product number
F4	Name/Synonym	Search for an MSDS by product name, synonym, RCRA number, DOT number
F5	NOT USED	
F6	Formula	Search for an MSDS by the chemical formula
F7	Export	Write MSDS text or structure to a disk file
F8	Multiple Print	Print a selected list of MSDS files
F9	Print	Print a single on-screen MSDS file
F10	Quit	Return to DOS

**Exhibit 1B cont. - FUNCTION KEY VERSION**  
**Using the Keypad Keys**

The scroll function is performed by the *numeric keypad*. Use the keys to move through MSDS documents line-by-line, page-by-page, or record-to-record. The diagram below shows the scroll features for each keypad key.

**The PC KEYPAD**



**COMMAND OPTIONS**

**HELP**

[return] + [return] - **MENU** users  
 [F1] - **FUNCTION KEY** users

To obtain on-screen information about MSDS search options and commands, select the **Help** option. To scroll through the Help text, press the **page up** or **down** keypad keys [9] - PgUp or [3] - PgDn, or *click* on the vertical window scroll buttons with a mouse. To return to the main system, *right-click* the mouse or press the [Escape] key.

**EXPORT**

[F] + [E] - **MENU** users  
 [F7] - **FUNCTION KEY** users

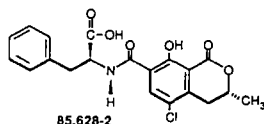
MSDS text files and structure graphics files can be copied from the database to a separate disk. Text files do not contain structure graphics when copied from the database.

To begin the export process, open the **FILE** menu and select the **Export** option (or press the [F7] key for function key users).

The system will now display a POP-UP window and request:

**Save molecule ot text?** [M/T] Press [T] for MSDS text or [M] for molecule.

The system will ask for a path and file name. Enter a path and name (no extension needed) and press the [return] key. The file will be copied to the designated disk. Text files are in ACSII format and are appended with a .TXT file name extension. Molecule files are in WIMP graphics format and have a .FTR file name extension.



The chemical structures in the MSDS database were created with the WIMP<sup>™</sup>Molecule Drawing Program. Structures can be copied from the database for use with WIMP in reports, presentations or publications.

WIMP was developed by Professor H.W. Whitlock of the University of Wisconsin, Madison and is available separately from Sigma or Aldrich. Request **Aldrich Technical Bulletin No. AL-162** for more information about the Wisconsin Interactive Molecule Processor.

<sup>™</sup>WIMP is a trademark of Aldrich Chemical Company

## PRINT

[F] + [P] - **MENU** users  
[F9] - **FUNCTION KEY** users

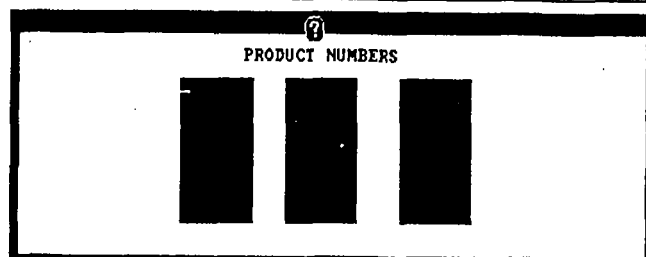
To print an on-screen MSDS record, open the **FILE** menu and select the **Print** option (or press the F9 key for function key users). Specify the number of copies to be printed (up to 99) and press the [return] key.

## PRINT MANY / MULTIPRINT

[F] + [M] - **MENU** users  
[F8] - **FUNCTION KEY** users

To select a group of MSDS records for batch printing, open the **FILE** menu and select the **Print Many** option (or press the [F8] key for function key users).

The system will now display a POP-UP window and request a list of Sigma and/or Aldrich product numbers (refer to the figure on the following page).



Enter the numbers one at a time pressing the [TAB] key (or press the [return] key for function key users) after each entry.

Press the [return] key to begin the printing process.

A maximum of *thirty* product numbers may be entered in a Print Many run.

The program will batch print the list of products, pausing only if a record in the list cannot be found. One copy of each MSDS is printed in the Print Many mode.

## QUIT

[F] + [Q] - **MENU** users  
[F10] - **FUNCTION KEY** users

Open the **FILE** menu and select the **Quit** option to exit the MSDS search program (or press the [F10] key for function key users).

## PRODUCT NUMBER SEARCH

[S] + [P] - **MENU** users  
[F3] - **FUNCTION KEY** users

The product number refers to the Sigma or Aldrich product number included in the Sigma or Aldrich Catalog.

*Examples:* The product number for Abietic Acid is 16,502-6, Acenaphthene is A10-4 and Cortisone is C 2755.

To begin the search, open the **SEARCH** menu and select the **Product Number** option (or press the [F3] key for function key users).

The system will now display a POP-UP window and request a product number.

Enter the product number **without comma or hyphen**, then press [return].

The entry for Abietic Acid would be **165026**, Acenaphthene would be **A104**, and Cortisone would be **C 2755**. The record for the product will be displayed on-screen. If the record is not found, the message *Record Not Found* will be displayed.

## NAME AND SYNONYM SEARCH

[S] + [N] - **MENU** users

[F4] - **FUNCTION KEY** users

The primary name of a product is the name listed in the Sigma or Aldrich Catalog. This database contains a cross-referenced synonym index which facilitates the use of alternate names, commercial tradenames, RCRA and DOT numbers, when searching for products. *Full or partial* names such as 1,2-Dichlorobenzene or just Dichlorobenzene may be specified in a search.

To begin the search, open the **SEARCH** menu and select the **Name** option (or press the [F4] key for function key users). The system will now display a POP-UP window and request the name or synonym.

?

Enter NAME or SYNONYM

Enter full or partial names precisely, including applicable numerals, commas, spaces, etc.

*Example:* Enter the name Methyl chloride and press [return].

If you are a function key user, the MSDS for Methyl chloride will appear on screen. Use keypad keys [4] and [6] to page between records. If you are a menu user, please refer to **Exhibit 2** on the following page.

## Exhibit 2 Menu Version Only

Highlight  
Bar

METHYL CHLORIDE

METHYL CHLORIDE

METHYL CHLORIDE

METHYL CHLORIDE

METHYL CHLORIDE (ACGIH, DOT)

METHYL CHLORIDE (ACGIH, DOT)

METHYL CHLORIDE (ACGIH, DOT)

METHYL CHLORIDE (ACGIH, DOT)

METHYL CHLOROACETATE

METHYL CHLOROACETATE (DOT)

METHYL CHLOROACETATE (DOT)

METHYL CHLOROACETATE (DOT)

METHYL CHLOROACETATE, 99%

METHYL CHLOROACETATE, 99+%, GOLD LABEL

METHYL CHLOROCARBONATE

Scroll  
Buttons

The system will now display a POP-UP window with a list of names starting with Methyl chloride. Page the name list using keypad keys [9] or [3] or *click* the window scroll buttons with a mouse. Move the menu highlight bar to the desired name with keypad keys [8] or [2] and press [return] to select it. Mouse users can *click* on the desired name, then press [return]. The record for the product will be displayed on-screen. To view other products, open the **MISC** menu and select a paging option.

## FORMULA SEARCH

[S] + [F] - MENU users

[F6] - FUNCTION KEY users

The Formula Search is based on the molecular formula of the product.

*Example:* The linear formula for Acetal is  $\text{CH}_3\text{CH}(\text{OC}_2\text{H}_5)_2$ . When written by element, this formula would be  $\text{C}_6\text{H}_{14}\text{O}_2$ .

To begin the search, open the **SEARCH** menu and select the **Formula** option (Press the [F6] key if you are a function key user). The system will now display a POP-UP window as shown.

**CHEMICAL FORMULA SEARCH**

Total number of Carbon atoms:

Total number of Hydrogen atoms:

Name of first element: <input type="text" value=""/>	Number of atoms: <input type="text" value="1"/>
Name of second element: <input type="text" value=""/>	Number of atoms: <input type="text" value="1"/>
Name of third element: <input type="text" value=""/>	Number of atoms: <input type="text" value="1"/>
Name of fourth element: <input type="text" value=""/>	Number of atoms: <input type="text" value="1"/>

Enter the number of CARBON atoms in the product, up to 2 digits. Press the [Tab] key (or press the [return] key if you are a function key user).

Enter the number of HYDROGEN atoms in the product, up to 4 digits. Press the [Tab] key (or press the [return] key if you are a function key user). If the formula does not contain carbon or hydrogen, a zero must be entered in these fields.

Enter the elemental abbreviation (upper or lower case) for the first element after carbon and hydrogen. Then enter the number of atoms for that element up to 2 digits. Elements can be input in *any* order. After each entry, press the [Tab] key (or press the [return] key if you are a function key user).

Press the [return] key to begin the search. The record for the product will be displayed on-screen. If no record is found, the message *Record Not Found* is displayed. There may be more than one record with the same search criteria. To view the search hits, open the **MISC** menu and select a paging option (or use the keypad keys [4] and [6] to page between records if you are a function key user).

## Formula Search Notes

- Water of hydration is not included in the formula.
- Salts of amines, except quaternary salts, are listed under the formulas of the free amines.
- Simple salts of organic acids are listed under the formulas of the free acids.



**CAS NUMBER SEARCH**

[S] + [C] - **MENU** users

[F2] - **FUNCTION KEY** users

The CAS number is the Chemical Abstracts Service registry number. The number is written as a series of three numbers separated by hyphens.

*Example:* The CAS number for Abietic Acid is 514-10-3.

To begin the search, open the **SEARCH** menu and select the **CAS** option (or press the [F2] key for function key users).

The system will now display a POP-UP window and request the CAS number.

Enter the CAS number for Abietic Acid as 514103, *without the hyphens*, then press [return].

The record for the product will be displayed on-screen. If the record is not found, the message *Record Not Found* will be displayed. There may be more than one record with the same search criteria. To view the search hits, open the **MISC** menu and select a paging option (or use keypad keys [4] or [6] to page between records if you are a function key user).

**GET NEXT**

[M] + [N] - **MENU** users

Numeric Keypad [4] - **FUNCTION KEY** users

This option pages one record past the current on-screen record.

**GET PREVIOUS**

[M] + [P] - **MENU** users

Numeric Keypad [6] - **FUNCTION KEY** users

This option pages one record before the current record.

**GET FIRST**

[M] + [F] - **MENU** users

[F] - **FUNCTION KEY** users

This option displays the first record in a list of search hits.

**GET LAST**

[M] + [L] - **MENU** users

[L] - **FUNCTION KEY** users

This option displays the last record in a list of search hits.

# LOG BOOK EXAMPLE

Revision 3  
May 14, 1990

\* Consolidation

DATE	LAB	QUANTITY	MATERIAL	CONTAINER	55 G. Plastic DRUM*	STORAGE ROOM
3/2/90	EATON	11x1gal	solvents (chloroform, acetone, benzene, methanol)	1 gal glass	✓	Flammable
3/13/90	WINKLER	7x1gal	solvents (acetone, ether, ethanol)	"	✓	"
	CLSC TAGER	9x1gal	solvents (Benzene, ethyl acetate)	"	✓	"
3/14/90	ERWOOD	12x1gal	Ammonium Hydroxide solution (Janitorial)	1 gal plastic		Corrosive
3/16/90	HALPERN	16x1gal	solvents (methylene chloride, Benzene, pentane)	1 gal glass	✓	Flammable
3/29/90	FLEMING	27x1gal	Laser dye solution (ethylene glycol, methanol)	"	✓	"
	CLSC MILLER	18 l.	9000 scintillation vials	vials	✓	"
4/2/90	EATON	12x1gal	solvents (Ethyl acetate, methanol, chloroform)	1 gal glass	✓	"
	WULF	3x1gal	Hexane	"	✓	"
	"	"	Benzene	"	✓	"
	CLSC MILLER	1 lb	Ethidium Bromide	glass		Toxic
4/11/90	OKA	1gal	Laser dye solution (Ethylene glycol)	"	✓	Flammable
4/17/90	BOSNICH	6x1gal	solvents (Benzene, acetone)	1 gal glass	✓	"
4/18/90	LYNN	10x1gal	solvents (ether, acetone, Benzene)	"	✓	"
	"	3x1gal	used pump oil	1 gal plastic	✓	"
4/20/90	CARLOS	1gal	solvents (methylene chloride, acetone)	glass	✓	"
4/23/90	EATON	12x1gal	solvents (acetone, Benzene, ethyl acetate)	1 gal glass	✓	"
		2x1gal	used pump oil	1 gal plastic	✓	"
4/25/90	R. OOS GATES	1 lb	Ammonium Molybdate	glass		Toxic
		2x1 lb	Citric acid	"		"
		1 lb	Diphenyl amine	"		"
		2x1 lb	Sodium Hydroxide	"		Corrosive
		3x1 lb	Oxalic Acid	"		Toxic
		4 oz	Lead nitrate	1 lb glass		"
		4 oz	Mercuric Oxide	"		"
		2x1 lb	Potassium Hydroxide	"		Corrosive
		1 lb	Sodium Barbitol	"		Toxic
		4 oz	Lead nitrate	"		"
		1 lb	Chromium potassium sulfate	"		"
		1 lb	Potassium Iodide	"		"
		4 oz	Bismuth subnitrate	"		"
		1 lb	Zinc chloride	"		"

**ARKWRIGHT**

December 15, 1989

Arkwright Mutual  
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Environmental Safety Facility  
61st & Blackstone Ave.  
Chicago, IL  
Index No. 65435.98  
Account No. 2-82135

Dear Mr. Wang:

I have attached a copy of a Factory Mutual report confirming a water flow test at the corner of Blackstone and E. 61st St. The test resulted in a flow of 852 gpm at a pressure of 33 psi. The Environmental Safety Facility requires a flow of 500 gpm at 20 psi which is available at the site.

I have also attached a copy of the Flood Insurance Rate Map (FIRM) which shows that the Environmental Safety Facility is outside of the flood prone area. This is considered flood zone C.

If any further information is needed please do not hesitate to call.

Sincerely,



Wayne R. Onyx  
Sr. Account Engineer

WRO:kk

cc: G. Klinksiek

pared by Factory Mutual Engineering Association										Quality Rating: <input checked="" type="checkbox"/> NON-STANDARD		REF. NO. 92216		
SWITCH No		70:	74:	INSURANCE COMPANY FILES						FMEA OFFICES		REC # 02	A/C #	
D.		105:	753: 01	CD.	BLDG	TEN	EXEC	HOME	REGION	DISTRICT	TOTAL		BUS.P	
7-10-89		792:	999:	2	X		5	1	* 2MWRO		D.O.	REGION	5-7	ixf 07-20
HRS.RISK	HRS. RPT	1244:	1663:								3CHIO	1MW	TSB	LTD
3.00	1.00	2377:	2405:								SERV.	FEC DEPT		X
SP		2449:	2102:								BM DEPT		GRAND TOTAL	
FREQ/EXPOSURE		414:	2173:										EXEC	FILE
BR		2230:	2288:											
		2418:	Flood Map No.	DCC. No.		DCC. Desc.							5	7

COPIES TO OTHERS

# LOSS PREVENTION REPORT

THE UNIVERSITY OF CHICAGO  
 "MAIN CAMPUS - ENVIRONMENTAL SAFETY FACILITY"  
 61st St & 6033 Blackstone Ave  
 Chicago, Illinois 60619

REPORTS SENT TO INSURED  
 WITHOUT LETTER OF TRANSMITTAL

*W/RO/et-10*  
*cc W/RO/et-10*

## CONFERENCE WITH

Mr. Bill Richards, Superintendent  
 On July 10, 1989

ENG AUG 10 1989

## REPORT BY

J. A. Joachim

## INDEX

65435.98

## ACCOUNT

2-82135

*8/10/89* *VR*

## PURPOSE

This location was visited to conduct a fire and associated perils special inspection.

## SUMMARY

A hydrant flow test was conducted near the site where the new environmental safety facility will be constructed.

### IMPORTANT CHANGES

A hydrant on Blackstone Street at East 61st Street was equipped to measure the static and residual pressures while the 4 in. butt on the next hydrant south was opened. The 4 in. butt flowed a pitot of 5 psi which corresponds to 852 gpm using a coefficient of 0.80. The static and residual pressures were 38 psi and 33 psi, respectively.

The 6 in. main in Blackstone Street was replaced with an 8 in. main approximately 5 yrs. ago, according to Mr. Bill Richards, Superintendent, for the Chicago Water Department.

### CONFERENCE WITH

This water test was made with assistance from the Chicago Water Department, Engineering Division. Mr. Bill Richards, Superintendent, was consulted with by phone. The actual test was conducted in the presence of Mr. Jim Roche.

MATERIAL SAFETY DATA SHEET Version Jan. 1990

Sigma-Aldrich Corporation  
1001 West Saint Paul Ave. Milwaukee, WI 53233 USA

	Sigma	Aldrich
For Emergency Contact USA/Canada	800-325-5832	800-231-8327
Outside USA/Canada	314-771-5765	414-273-3850



IDENTIFICATION

PRODUCT #: 17941-8      NAME: TOLUENE, 99+%, A.C.S. REAGENT  
CAS #: 108-88-3  
MF: C<sub>7</sub>H<sub>8</sub>

SYNONYMS

ANTISAL 1A \* BENZENE, METHYL- \* METHACIDE \* METHANE, PHENYL- \*  
METHYLBENZENE \* METHYLBENZOL \* NCI-C07272 \* PHENYLMETHANE \* RCRA  
WASTE NUMBER U220 \* TOLUEEN (DUTCH) \* TOLUEN (CZECH) \* TOLUENE (ACGIH,  
DOT, OSHA) \* TOLUOL \* TOLUOL (DOT) \* TOLUOLO (ITALIAN) \* TOLU-SOL \* UN  
1294 (DOT) \*

TOXICITY HAZARDS

RTECS NO: XS5250000

TOLUENE

IRRITATION DATA

EYE-HMN 300 PPM	JIHTAB 25,282,43
SKN-RBT 435 MG MLD	UCDS** 7/23/70
SKN-RBT 500 MG MOD	FCTOD7 20,563,82
SKN-RBT 20 MG/24H MOD	85JCAE -,29,86
EYE-RBT 870 UG MLD	UCDS** 7/23/70
EYE-RBT 2 MG/24H SEV	85JCAE -,29,86

EYE-RBT 100 MG/30S RINSE MLD

FCTOD7 20,573.82

TOXICITY DATA

ORL-HMN LDLO:50 MG/KG

YAKUD5 22,883,80

ORL-RAT LD50:5000 MG/KG

AMIHAB 19,403,59

IPR-RAT LD50:1332 MG/KG

ENVRAL 40,411,86

IVN-RAT LD50:1960 MG/KG

MELAAD 54,486,63

UNR-RAT LD50:6900 MG/KG

GISAAA 45(12),64,80

IHL-MUS LC50:5320 PPM/8H

JIHTAB 25,366,43

IPR-MUS LD50:640 MG/KG

ANYAA9 243,104,75

SCU-MUS LD50:2250 MG/KG

NRTXDN 8,237,87

UNR-MUS LD50:2000 MG/KG

GISAAA 45(12),64,80

SKN-RBT LD50:12124 MG/KG

AIHAAP 30,470,69

REVIEWS, STANDARDS, AND REGULATIONS

ACGIH TLV-TWA 100 PPM; STEL 150 PPM 85INA8 5,578,86

MSHA STANDARD-AIR:TWA 100 PPM (375 MG/M3) (SKIN) DTLWS\* 3,29,73

OSHA PEL:8H TWA 200 PPM;CL 300;PK 500/10M FEREAC 54,2923,89

OSHA PEL FINAL:8H TWA 100 PPM (375 MG/M3);STEL 150 PPM (560 MG/M3)

FEREAC 54,2923,89

NIOSH REL TO TOLUENE-AIR:10H TWA 100 PPM/8H;CL 200 PPM/10M MMWR\*\*

37(S-7),26,88

EPA GENETOX PROGRAM 1988, NEGATIVE: CELL TRANSFORM.-SA7/SHE; IN VITRO  
SCE-HUMAN

EPA GENETOX PROGRAM 1988, NEGATIVE: SPERM MORPHOLOGY-MOUSE

EPA GENETOX PROGRAM 1988, INCONCLUSIVE: E COLI POLA WITHOUT S9

EPA TSCA CHEMICAL INVENTORY, 1986

EPA TSCA 8(A) PRELIMINARY ASSESSMENT INFORMATION, FINAL RULE FEREAC  
47,26992,82

EPA TSCA SECTION 8(E) STATUS REPORT 8EHQ-0680-0345;8EHQ-1080-0368;  
8EHQ-0278-0079 P

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1989

NIOSH ANALYTICAL METHODS: SEE HYDROCARBONS, AROMATIC, 1501;

HYDROCARBONS, BP 36-126 C, 1500;

NIOSH ANALYTICAL METHODS: SEE TOLUENE, 4000; 2-BUTANONE, ETHANOL, AND  
TOLUENE IN BLOOD, 8002

NTP CARCINOGENESIS STUDIES;TEST COMPLETED (AWAITING AUDIT), APRIL 1989

NTP CARCINOGENESIS STUDIES;TEST COMPLETED (PEER REVIEW), FEBRUARY 1989

MEETS CRITERIA FOR PROPOSED OSHA MEDICAL RECORDS RULE FEREAC 47,30420,  
82

TARGET ORGAN DATA

BRAIN AND COVERINGS (RECORDINGS FROM SPECIFIC AREAS OF CNS)

BEHAVIORAL (GENERAL ANESTHETIC)

BEHAVIORAL (SOMNOLENCE)

BEHAVIORAL (HALLUCINATIONS, DISTORTED PERCEPTIONS)

BEHAVIORAL (CHANGE IN MOTOR ACTIVITY)

BEHAVIORAL (ANTIPSYCHOTIC)

BEHAVIORAL (IRRITABILITY)

BEHAVIORAL (CHANGE IN PSYCHOPHYSIOLOGICAL TESTS)

BLOOD (CHANGES IN BONE MARROW NOT INCLUDED IN ABOVE)

PATERNAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)

EFFECTS ON FERTILITY (ABORTION)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (UROGENITAL SYSTEM)

EFFECTS ON NEWBORN (BIOCHEMICAL AND METABOLIC)

ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL

SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL

ENTRY IN RTECS FOR COMPLETE INFORMATION.

----- HEALTH HAZARD DATA -----

ACUTE EFFECTS

HARMFUL IF SWALLOWED, INHALED, OR ABSORBED THROUGH SKIN.  
VAPOR OR MIST IS IRRITATING TO THE EYES, MUCOUS MEMBRANES AND UPPER  
RESPIRATORY TRACT.  
CAUSES SKIN IRRITATION.  
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,  
WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND  
VOMITING.  
EXPOSURE CAN CAUSE:  
LUNG IRRITATION, CHEST PAIN AND EDEMA WHICH MAY BE FATAL.

CHRONIC EFFECTS

DAMAGE TO THE LIVER  
BLOOD EFFECTS  
DAMAGE TO THE KIDNEYS  
MAY CAUSE NERVOUS SYSTEM DISTURBANCES.

FIRST AID

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS  
AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED  
CLOTHING AND SHOES.  
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL  
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.  
CALL A PHYSICIAN.  
WASH CONTAMINATED CLOTHING BEFORE REUSE.

SECTION 3 FOOTNOTES

USE OF ALCOHOL CAN INCREASE THE NARCOTIC EFFECT AND THE BLOOD EFFECTS  
OF TOLUENE.

----- PHYSICAL DATA -----

BOILING PT: 110.8 C  
MELTING PT: -93 C  
SPECIFIC GRAVITY: 0.865  
VAPOR DENSITY: 3.2  
VAPOR PRESSURE: 22 MM @ 20 C  
26 MM @ 25 C

APPEARANCE AND ODOR

COLORLESS LIQUID

----- FIRE AND EXPLOSION HAZARD DATA -----

FLASHPOINT: 40 F BY:  
AUTOIGNITION TEMPERATURE: 997 F  
LOWER EXPLOSION LEVEL: 1%  
UPPER EXPLOSION LEVEL: 7%

EXTINGUISHING MEDIA

CARBON DIOXIDE, DRY CHEMICAL POWDER, ALCOHOL OR POLYMER FOAM.  
WATER MAY BE EFFECTIVE FOR COOLING, BUT MAY NOT EFFECT EXTINGUISHMENT.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO  
PREVENT CONTACT WITH SKIN AND EYES.  
USE WATER SPRAY TO COOL FIRE-EXPOSED CONTAINERS.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

DANGER:  
EXTREMELY FLAMMABLE.  
VAPOR MAY TRAVEL CONSIDERABLE DISTANCE TO SOURCE OF IGNITION AND  
FLASH BACK.  
CONTAINER EXPLOSION MAY OCCUR UNDER FIRE CONDITIONS.

----- REACTIVITY DATA -----

INCOMPATIBILITIES



OXIDIZING AGENTS

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

TOXIC FUMES OF:

CARBON MONOXIDE, CARBON DIOXIDE

----- SPILL OR LEAK PROCEDURES -----

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

EVACUATE AREA.

SHUT OFF ALL SOURCES OF IGNITION.

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

COVER WITH AN ACTIVATED CARBON ADSORBENT, TAKE UP AND PLACE IN CLOSED CONTAINERS. TRANSPORT OUTDOORS.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

WASTE DISPOSAL METHOD

BURN IN A CHEMICAL INCINERATOR EQUIPPED WITH AN AFTERBURNER AND SCRUBBER BUT EXERT EXTRA CARE IN IGNITING AS THIS MATERIAL IS HIGHLY FLAMMABLE.

OBSERVE ALL FEDERAL, STATE, AND LOCAL LAWS.

--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.

SAFETY SHOWER AND EYE BATH.

MECHANICAL EXHAUST REQUIRED.

DO NOT BREATHE VAPOR.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

READILY ABSORBED THROUGH SKIN.

WASH THOROUGHLY AFTER HANDLING.

TOXIC.

IRRITANT.

KEEP TIGHTLY CLOSED.

KEEP AWAY FROM HEAT, SPARKS, AND OPEN FLAME.

STORE UNDER NITROGEN.

STORE IN A COOL DRY PLACE.

REGULATORY INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

----- ADDITIONAL PRECAUTIONS AND COMMENTS -----

SECTION 9 FOOTNOTES

IRON OR FERRIC CHLORIDE CATALYZES A VIGOROUS EXOTHERMIC REACTION BETWEEN TOLUENE AND SULFUR DICHLORIDE. REF: CHEM. ENG. NEWS, P. 2, AUGUST 8, 1988.

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA-ALDRICH SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

MATERIAL SAFETY DATA SHEET Version Jan. 1990

Sigma-Aldrich Corporation  
1001 West Saint Paul Ave. Milwaukee, WI 53233 USA

	Sigma	Aldrich
For Emergency Contact USA/Canada	800-325-5832	800-231-8327
Outside USA/Canada	314-771-5765	414-273-3850



IDENTIFICATION

PRODUCT #: 20290-8      NAME: CADMIUM CHLORIDE, 99.99+%  
CAS #: 10108-64-2  
MF: CDCL2

SYNONYMS

CADDY \* CADMIUM DICHLORIDE \* KADMIUMCHLORID (GERMAN) \* VI-CAD \*

TOXICITY HAZARDS

RTECS NO: EV0175000

CADMIUM CHLORIDE

TOXICITY DATA

ORL-WMN LDLO:3 GM/KG	BMJOAE 292,1559,86
ORL-RAT LD50:88 MG/KG	AFDOAQ 15,122,51
IPR-RAT LD50:1800 UG/KG	EVHPAZ 28,89,79
ORL-MUS LD50:60 MG/KG	APTOA6 48,108,81
IHL-MUS LC50:2300 MG/M3	NTIS** PB158-508
IPR-MUS LD50:9300 UG/KG	NEZAAQ 32,472,77
SCU-MUS LD50:3200 UG/KG	APTOA6 48,108,81
IVN-MUS LD50:3500 UG/KG	TXAPA9 53,510,80
ORL-GPG LD50:63 MG/KG	FOREAE 7,313,42
ORL-CKN LD50:165 MG/KG	41PDA9 -,160,79

IMS-FRG LD50:10 MG/KG

CBPCEE 85,249,86

UNR-MAM LD50:88 MG/KG

FMCHA2 -,C41,83

#### REVIEWS, STANDARDS, AND REGULATIONS

ACGIH TLV-TWA 0.01 MG(CD)/M3 85INA8 5,87(87),86

ACGIH TLV-SUSPECTED CARCINOGEN 85INA8 5,87(87),86

IARC CANCER REVIEW:ANIMAL SUFFICIENT EVIDENCE IMEMDT 2,74,73

IARC CANCER REVIEW:ANIMAL SUFFICIENT EVIDENCE IMEMDT 11,39,76

IARC CANCER REVIEW:GROUP 2A IMSUDL 7,139,87

MSHA STANDARD-AIR:TWA 0.2 MG(CD)/M3 DTLVS\* 3,34,71

NIOSH REL TO CADMIUM-AIR:TWA REDUCE TO LOWEST FEASIBLE LEVEL MMWR\*\*  
37(S-7),7,88

EPA GENETOX PROGRAM 1988, POSITIVE: CARCINOGENICITY-MOUSE/RAT; CELL  
TRANSFORM.-SA7/SHE

EPA GENETOX PROGRAM 1988, POSITIVE: D MELANOGASTER-WHOLE SEX CHROM.  
LOSS; B SUBTILIS REC ASSAY

EPA GENETOX PROGRAM 1988, POSITIVE: SPERM MORPHOLOGY-RAT; SPERM  
MORPHOLOGY-RABBIT

EPA GENETOX PROGRAM 1988, POSITIVE: S CEREVISIAE-HOMOZYGOSIS

EPA GENETOX PROGRAM 1988, NEGATIVE: IN VITRO CYTOGENETICS-HUMAN  
LYMPHOCYTE

EPA GENETOX PROGRAM 1988, NEGATIVE: RODENT DOMINANT LETHAL; HOST-  
MEDIATED ASSAY

EPA GENETOX PROGRAM 1988, INCONCLUSIVE: MAMMALIAN MICRONUCLEUS;  
HISTIDINE REVERSION-AMES TEST

EPA GENETOX PROGRAM 1988, INCONCLUSIVE: SPERM MORPHOLOGY-MOUSE

EPA TSCA CHEMICAL INVENTORY, 1986

EPA TSCA TEST SUBMISSION (TSCATS) DATA BASE, JUNE 1989

NTP FOURTH ANNUAL REPORT ON CARCINOGENS, 1984

MEETS CRITERIA FOR PROPOSED OSHA MEDICAL RECORDS RULE FEREAC 47,30420,  
82

#### TARGET ORGAN DATA

LUNGS, THORAX OR RESPIRATION (TUMORS)

PATERNAL EFFECTS (SPERMATOGENESIS)

PATERNAL EFFECTS (TESTES, EPIDIDYMIS, SPERM DUCT)

PATERNAL EFFECTS (PROSTATE, SEMINAL VESICLE, COWPER'S, ACCESSORY  
GLANDS)

MATERNAL EFFECTS (OOGENESIS)

MATERNAL EFFECTS (OVARIES, FALLOPIAN TUBES)

MATERNAL EFFECTS (OTHER EFFECTS ON FEMALE)

EFFECTS ON FERTILITY (FEMALE FERTILITY INDEX)

EFFECTS ON FERTILITY (MALE FERTILITY INDEX)

EFFECTS ON FERTILITY (PRE-IMPLANTATION MORTALITY)

EFFECTS ON FERTILITY (POST-IMPLANTATION MORTALITY)

EFFECTS ON FERTILITY (LITTER SIZE)

EFFECTS ON FERTILITY (OTHER MEASURES OF FERTILITY)

EFFECTS ON EMBRYO OR FETUS (EXTRA EMBRYONIC STRUCTURES)

EFFECTS ON EMBRYO OR FETUS (MATERNAL-FETAL EXCHANGE)

EFFECTS ON EMBRYO OR FETUS (FETOTOXICITY)

EFFECTS ON EMBRYO OR FETUS (FETAL DEATH)

EFFECTS ON EMBRYO OR FETUS (OTHER EFFECTS TO EMBRYO OR FETUS)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (CENTRAL NERVOUS SYSTEM)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (EYE, EAR)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (CRANIOFACIAL)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (BODY WALL)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (MUSCULOSKELETAL SYSTEM)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (CARDIOVASCULAR SYSTEM)

SPECIFIC DEVELOPMENTAL ABNORMALITIES (RESPIRATORY SYSTEM)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (GASTROINTESTINAL SYSTEM)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (HEPATOBIILIARY SYSTEM)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (ENDOCRINE SYSTEM)  
SPECIFIC DEVELOPMENTAL ABNORMALITIES (UROGENITAL SYSTEM)  
TUMORIGENIC EFFECTS (TESTICULAR TUMORS)  
EFFECTS ON NEWBORN (GROWTH STATISTICS)  
EFFECTS ON NEWBORN (OTHER POSTNATAL MEASURES OR EFFECTS)  
EFFECTS ON NEWBORN (DELAYED EFFECTS)  
NUTRITIONAL AND GROSS METABOLIC (WEIGHT LOSS OR DECREASED WEIGHT GAIN)  
TUMORIGENIC (CARCINOGENIC BY RTECS CRITERIA)  
TUMORIGENIC (NEOPLASTIC BY RTECS CRITERIA)  
TUMORIGENIC (EQUIVOCAL TUMORIGENIC AGENT BY RTECS CRITERIA)  
TUMORIGENIC (TUMORS AT SITE OF APPLICATION)  
TUMORIGENIC (FACILITATES ACTION OF KNOWN CARCINOGENS)  
BIOCHEMICAL EFFECTS (PHOSPHATASES)  
BIOCHEMICAL EFFECTS (DEHYDROGENASES)  
BIOCHEMICAL EFFECTS (OTHER TRANSFERASES)  
ONLY SELECTED REGISTRY OF TOXIC EFFECTS OF CHEMICAL  
SUBSTANCES (RTECS) DATA IS PRESENTED HERE. SEE ACTUAL  
ENTRY IN RTECS FOR COMPLETE INFORMATION.

----- HEALTH HAZARD DATA -----

ACUTE EFFECTS

MAY BE FATAL IF INHALED OR SWALLOWED.  
MATERIAL IS IRRITATING TO MUCOUS MEMBRANES AND UPPER  
RESPIRATORY TRACT.  
EXPOSURE CAN CAUSE:  
NAUSEA, HEADACHE AND VOMITING  
DAMAGE TO THE KIDNEYS  
DAMAGE TO THE LUNGS

CHRONIC EFFECTS

CARCINOGEN.  
MAY CAUSE CONGENITAL MALFORMATION IN THE FETUS.  
MAY ALTER GENETIC MATERIAL.

FIRST AID

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS  
AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED  
CLOTHING AND SHOES.  
IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL  
RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.  
CALL A PHYSICIAN.

----- PHYSICAL DATA -----

MELTING PT: 568 C  
SPECIFIC GRAVITY: 4.047  
VAPOR DENSITY: 6.3  
VAPOR PRESSURE: 10 MM @ 656 C

APPEARANCE AND ODOR

WHITE POWDER

----- FIRE AND EXPLOSION HAZARD DATA -----

EXTINGUISHING MEDIA

NONCOMBUSTIBLE.

USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO  
PREVENT CONTACT WITH SKIN AND EYES.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

----- REACTIVITY DATA -----

INCOMPATIBILITIES

OXIDIZING AGENTS

SENSITIVE TO AIR

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

NATURE OF DECOMPOSITION PRODUCTS NOT KNOWN.

----- SPILL OR LEAK PROCEDURES -----

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

EVACUATE AREA.

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

WEAR DISPOSABLE COVERALLS AND DISCARD THEM AFTER USE.

SWEEP UP, PLACE IN A BAG AND HOLD FOR WASTE DISPOSAL.

AVOID RAISING DUST.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

WASTE DISPOSAL METHOD

THE MATERIAL SHOULD BE DISSOLVED IN 1) WATER; 2) ACID SOLUTION OR 3) OXIDIZED TO A WATER-SOLUBLE STATE. PRECIPITATE THE MATERIAL AS THE SULFIDE, ADJUSTING THE PH OF THE SOLUTION TO 7 TO COMPLETE PRECIPITATION. FILTER THE INSOLUBLES AND DISPOSE OF THEM IN A HAZARDOUS-WASTE SITE. DESTROY ANY EXCESS SULFIDE WITH SODIUM HYPOCHLORITE. NEUTRALIZE THE SOLUTION BEFORE FLUSHING DOWN THE DRAIN. OBSERVE ALL FEDERAL, STATE, AND LOCAL LAWS.

--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.

USE ONLY IN A CHEMICAL FUME HOOD.

SAFETY SHOWER AND EYE BATH.

AVOID CONTACT AND INHALATION.

WASH THOROUGHLY AFTER HANDLING.

HIGHLY TOXIC.

CARCINOGEN.

TERATOGEN.

MUTAGEN.

KEEP TIGHTLY CLOSED.

HYGROSCOPIC

PROTECT FROM AIR

STORE IN A COOL DRY PLACE.

REGULATORY INFORMATION

THIS PRODUCT IS SUBJECT TO SARA SECTION 313 REPORTING REQUIREMENTS.

----- ADDITIONAL PRECAUTIONS AND COMMENTS -----

SECTION 9 FOOTNOTES

REACTS VIOLENTLY WITH POTASSIUM.

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA-ALDRICH SHALL NOT BE HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL TERMS AND CONDITIONS OF SALE.

Sigma-Aldrich Corporation  
1001 West Saint Paul Ave. Milwaukee, WI 53233 USA

	Sigma	Aldrich
For Emergency Contact USA/Canada	800-325-5832	800-231-8327
Outside USA/Canada	314-771-5765	414-273-3850



----- IDENTIFICATION -----  
PRODUCT #: 17679-6 NAME: SULFURIC ACID-D2, 98 WT. % SOLUTION  
CAS #: 13813-19-9 IN D2O, 99.5+ ATOM % D  
MF: D2O4S

----- TOXICITY HAZARDS -----  
DATA NOT AVAILABLE

----- HEALTH HAZARD DATA -----

#### ACUTE EFFECTS

MAY BE FATAL IF SWALLOWED.  
HARMFUL IF INHALED OR ABSORBED THROUGH SKIN.  
MATERIAL IS EXTREMELY DESTRUCTIVE TO TISSUE OF THE MUCOUS MEMBRANES  
AND UPPER RESPIRATORY TRACT, EYES AND SKIN.  
INHALATION MAY BE FATAL AS A RESULT OF SPASM, INFLAMMATION AND EDEMA  
OF THE LARYNX AND BRONCHI, CHEMICAL PNEUMONITIS AND PULMONARY EDEMA.  
SYMPTOMS OF EXPOSURE MAY INCLUDE BURNING SENSATION, COUGHING,  
WHEEZING, LARYNGITIS, SHORTNESS OF BREATH, HEADACHE, NAUSEA AND  
VOMITING.

#### FIRST AID

IN CASE OF CONTACT, IMMEDIATELY FLUSH EYES OR SKIN WITH COPIOUS  
AMOUNTS OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED

CLOTHING AND SHOES.

ASSURE ADEQUATE FLUSHING OF THE EYES BY SEPARATING THE EYELIDS WITH FINGERS.

IF INHALED, REMOVE TO FRESH AIR. IF NOT BREATHING GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN.

IN CASE OF EXPOSURE, OBTAIN MEDICAL ATTENTION IMMEDIATELY.

WASH CONTAMINATED CLOTHING BEFORE REUSE.

DISCARD CONTAMINATED SHOES.

----- PHYSICAL DATA -----

APPEARANCE AND ODOR

COLORLESS LIQUID

----- FIRE AND EXPLOSION HAZARD DATA -----

EXTINGUISHING MEDIA

NONCOMBUSTIBLE.

USE EXTINGUISHING MEDIA APPROPRIATE TO SURROUNDING FIRE CONDITIONS.

DO NOT USE WATER.

SPECIAL FIREFIGHTING PROCEDURES

WEAR SELF-CONTAINED BREATHING APPARATUS AND PROTECTIVE CLOTHING TO PREVENT CONTACT WITH SKIN AND EYES.

CONTACT WITH OTHER MATERIAL MAY CAUSE FIRE.

UNUSUAL FIRE AND EXPLOSIONS HAZARDS

EMITS TOXIC FUMES UNDER FIRE CONDITIONS.

----- REACTIVITY DATA -----

INCOMPATIBILITIES

BASES

HALIDES

AVOID CONTACT WITH METALS.

DO NOT ALLOW WATER TO ENTER CONTAINER BECAUSE OF VIOLENT REACTION.

HAZARDOUS COMBUSTION OR DECOMPOSITION PRODUCTS

SULFUR OXIDES

----- SPILL OR LEAK PROCEDURES -----

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED

EVACUATE AREA.

WEAR SELF-CONTAINED BREATHING APPARATUS, RUBBER BOOTS AND HEAVY RUBBER GLOVES.

COVER WITH DRY-LIME, SAND, OR SODA ASH. PLACE IN COVERED CONTAINERS USING NON-SPARKING TOOLS AND TRANSPORT OUTDOORS.

VENTILATE AREA AND WASH SPILL SITE AFTER MATERIAL PICKUP IS COMPLETE.

WASTE DISPOSAL METHOD

FOR SMALL QUANTITIES: CAUTIOUSLY ADD TO A LARGE STIRRED EXCESS OF WATER. ADJUST THE PH TO NEUTRAL, SEPARATE ANY INSOLUBLE SOLIDS OR LIQUIDS AND PACKAGE THEM FOR HAZARDOUS-WASTE DISPOSAL. FLUSH THE AQUEOUS SOLUTION DOWN THE DRAIN WITH PLENTY OF WATER. THE HYDROLYSIS AND NEUTRALIZATION REACTIONS MAY GENERATE HEAT AND FUMES WHICH CAN BE CONTROLLED BY THE RATE OF ADDITION.

OBSERVE ALL FEDERAL, STATE, AND LOCAL LAWS.

--- PRECAUTIONS TO BE TAKEN IN HANDLING AND STORAGE ---

WEAR APPROPRIATE NIOSH/MSHA-APPROVED RESPIRATOR, CHEMICAL-RESISTANT GLOVES, SAFETY GOGGLES, OTHER PROTECTIVE CLOTHING.

MECHANICAL EXHAUST REQUIRED.

SAFETY SHOWER AND EYE BATH.

FACESHIELD (8-INCH MINIMUM).

AVOID BREATHING VAPOR.

AVOID CONTACT WITH EYES, SKIN AND CLOTHING.

AVOID PROLONGED OR REPEATED EXPOSURE.

WASH THOROUGHLY AFTER HANDLING.

POISON  
CORROSIVE.  
KEEP TIGHTLY CLOSED.  
REACTS VIOLENTLY WITH WATER.  
DO NOT STORE NEAR, NOR ALLOW CONTACT WITH, CLOTHING AND OTHER  
COMBUSTIBLE MATERIAL.  
STORE UNDER NITROGEN.  
STORE IN A COOL DRY PLACE.

----- ADDITIONAL PRECAUTIONS AND COMMENTS -----

SECTION 9 FOOTNOTES

INCOMPATIBLE WITH CARBIDES, CHLORATES FULMINATES, NITRATES, PICRATES,  
CYANIDES, ALKALI HALIDES, NITRITES, ZINC IODIDE, PERMANGANATES,  
HYDROGEN PEROXIDE, AZIDES, PERCHLORATES, NITROMETHANE, PHOSPHOROUS.  
VIOLENT REACTION WITH: CYCLOPENTADIENE, CYCLOPENTANONE OXIME,  
NITROARYL AMINES, HEXALITHIUM DISILICIDE, PHOSPHOROUS(III) OXIDE.

THE ABOVE INFORMATION IS BELIEVED TO BE CORRECT BUT DOES NOT PURPORT TO BE  
ALL INCLUSIVE AND SHALL BE USED ONLY AS A GUIDE. SIGMA-ALDRICH SHALL NOT BE  
HELD LIABLE FOR ANY DAMAGE RESULTING FROM HANDLING OR FROM CONTACT WITH THE  
ABOVE PRODUCT. SEE REVERSE SIDE OF INVOICE OR PACKING SLIP FOR ADDITIONAL  
TERMS AND CONDITIONS OF SALE.



PROCEDURES TO IDENTIFY  
CHEMICAL SPILL/ASSESS HAZARD

There are several methods for identifying hazardous materials involved in the incident. Initially, the Emergency Coordinator will try to identify markings on containers by item description and area of the facility it is stored in. The Emergency Coordinator will compare inventory logs to storage locations to determine chemicals that may be involved.

In the event materials cannot be identified from item descriptions or storage location, a sample will be submitted to a contract laboratory for analysis of hazard characteristics, using EPA methodology (SW-846: 1010, 1310, 9045, Section 7.3.3.2 and 7.3.4.1). Upon receipt of analysis, the material will be disposed of following applicable requirements.

Hazard assessment will be performed using chemical references, knowledge of material hazard characteristics, and the chemical background of the emergency coordinator. Fire/explosion hazard assessment will be performed by the fire department.

Once an assessment of the hazard is complete, applicable evacuations or control measures will be implemented. The City of Chicago maintains an emergency response team to deal with chemical material incidents. The organization has been contacted by The University of Chicago regarding potential hazards involved with the Laboratory Services Facility.

As a follow-up to the assessment, the quantity of material spilled will be evaluated against the reportable spill quantities of CERCLA/SARA to determine reporting requirements.

THE UNIVERSITY OF CHICAGO

5801 ELLIS AVENUE  
CHICAGO • ILLINOIS 60637

Office of the Vice-Presidents  
for Business and Finance

(312) 702-8504

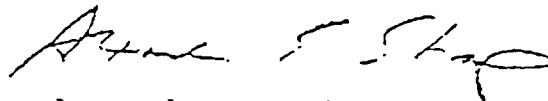
January 16, 1990

Mr. Hsien-Yien Wang  
Safety Officer, University Labs.  
Emergency Coordinator  
Hazardous Waste Management Unit  
Jones Laboratory 104  
5747 South Ellis Ave.  
Chicago, IL 60637

Re: Hazardous Waste Management

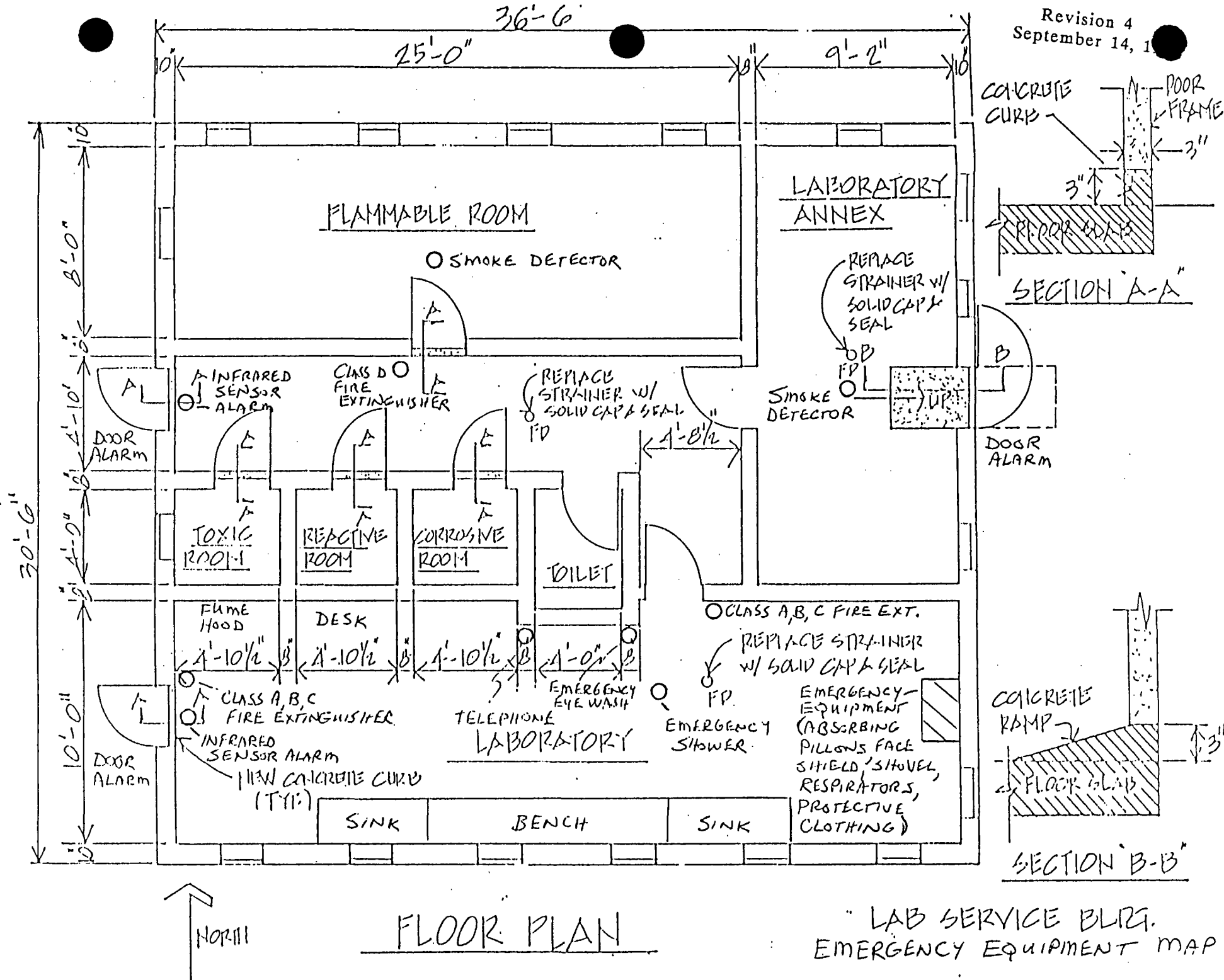
Dear Mr. Wang:

In connection with the implementation of The University of Chicago contingency plan for the handling of hazardous waste materials should incidents occur at the University which would necessitate the implementation of the University of Chicago plan, please be advised that you are hereby authorized in such an event to commit whatever resources of the University that are necessary to carry out the contingency plan and do whatever else that may be required in the event of such an emergency.



Alexander E. Sharp  
Vice President for  
Business and Finance

Revision 4  
September 14, 1981



FLOOR PLAN

LAB SERVICE BLDG.  
EMERGENCY EQUIPMENT MAP

July 5, 1983

HAZARDOUS SOLID WASTE CONTINGENCY PLAN,  
THE UNIVERSITY OF CHICAGO

USEPA Interim Permit No. ID #ILT180019838

IEPA Permit No. 0316000848

Responsible Coordinator: Norman H. Nachtrieb, University Safety Officer  
Office: Searle Chemistry Laboratory, Room 117  
5735 S. Ellis Avenue, Chicago, IL. 60637

Non-releasable

Non-releasable

Non-releasable

The University of Chicago maintains two sites for the temporary storage of chemical wastes, pending their removal in lab-pack drums for manifested disposal either by incineration or by landfill, as appropriate. These sites are designated as Room J-16 of the George Herbert Jones Chemistry Laboratory (5747 Ellis Avenue, Chicago, Illinois 60637) and the Franklin McLean Memorial Research Institute Blockhouse (950 E. 59th Street, Chicago, Illinois 60637). They are described more fully in the following:

- A.) G. H. JONES ROOM 16 is a basement room situated beneath the concrete loading dock of the George Herbert Jones Chemistry Laboratory. Figure 1 is a map of The University of Chicago that shows the access routes by vehicles to this storage room. The points of closest vehicle approach are denoted by the letters A, B, and C on the map.
- Room 16 is separated from the adjoining Kent Chemical Laboratory on the East by steel fire doors and from the basement corridor of the Jones Chemical Laboratory on the West by another set of steel fire doors. (Figure 2)

Three routes for pedestrian evacuation from Jones 16 are by:

a.) Concrete masonry stairway to the 1st floor of the Jones Laboratory, from which exit from the building is Westward in the 1st floor corridor and out of the main building entrance, or

b.) Eastward through steel crash doors, North to the loading dock courtyard or South into the main campus, or

c.) Westward in the Jones basement corridor to the stairway up to the main building exit.

Room 16 has an area, 12 ft. x 27 ft. Its two ceiling lights are enclosed in vapor-proof heavy glass shields and their only switch is located in the corridor outside the room.

Heat and smoke detectors are located centrally at ceiling heights, and are connected to both a local buzzer alarm and to the University's Security Department.

The door to Room 16 is locked at all times, and unauthorized access sounds the local alarm and simultaneously alerts the switchboard operator in the Security Department. It is posted as a Hazardous Chemical Storage area, with the name, address and telephone number of the Emergency Coordinator. The security alert system is deactivated, for entrance to Room 16 by authorized persons, by means of a key-activated electronic relay system.

Keys to Jones 16 are in possession of only the following:

Professor Norman H. Nachtrieb, University Laboratory  
Safety Officer

Office: Searle Chemistry Lab, Room 117, Tel: 962-7094

Non-

Dr. Gregory L. Boshart, Executive Officer, Department of  
Chemistry,

Office: Searle, Room 127, Tel: 962-7250 or 962-7950

Mr. Robert Crampton, Sr. Storekeeper, Office: George H. Jones  
Lab, Room 304, Tel: 962-7053.

Mr. Michael Gramhofer, Chief Building Engineer, G. H. Jones,  
Room 7, Tel: 962-7091, Non-releasable [REDACTED]

University Security Department, 5555 Ellis Avenue

David O'Leary, Director, Office Tel: 962-8181

Non-releasable [REDACTED]

NOTE: All Fire, Police, and Emergencies are centrally reported to University Security (Tel. Campus System = 123) (962-8181), who relay information to the City of Chicago Fire Department (Police Department) as appropriate. The Jones-16 detector/alert system notifies the Security Department automatically when smoke or heat activate it or when an unauthorized person enters the room.

A hazardous chemical sign on the door to Jones-16 forbids unauthorized entrance and lists the name, address, and telephone number of the responsible person qualified to coordinate emergency activities, viz.:

Norman H. Nachtrieb, Office: Searle 117, Tel: 962-7094

Non-releasable [REDACTED]

#### EMERGENCY EQUIPMENT

A CO<sub>2</sub> Fire Extinguisher is located in Jones-16, and 2 CO<sub>2</sub> Fire extinguishers are in the basement corridor of the G. H. Jones Laboratory. Absorbant spill pillows are kept in Jones-16 for the clean-up of minor spills. A full face mask with cannisters for the removal of acid, gases, organic vapors and dust is kept in the Safety Officer's Office, Searle-117.

#### B. Contingency Plan for Jones-16

In the event of accidental release of hazardous waste, the University Safety Officer (Norman H. Nachtrieb) will assess the hazard and take appropriate action, which may involve:

- a.) Simple clean-up of spilled waste and decontamination of the area affected.
- b.) Evacuation of occupants of the George Herbert Jones Laboratory if the hazard warrants that action.
- c.) Alerting the Security Department, if the incident warrants such action.
- d.) Summoning medical assistance from University Health Service if the emergency warrants such action, and directing persons to the University Emergency Medicine Department with assistance if deemed advisable.
- e.) Assisting members of the City Fire Department with information about the hazards if the incident requires their services.

C. Franklin McLean Research Institute Blockhouse.

Figure 1 shows the location of this second hazardous solid waste storage site. (D) It is a limestone structure, 33 ft. x 46 ft. in area, located in the courtyard of Billings Hospital through an arch on the west side of 5860 Ellis Avenue. Padlocked iron gates prevent public access, but a Medical Center security guard responds to a door-bell in the arch and will open them. The arch is about 12 ft. wide and about 15 ft. high and will accommodate semi-trailers. The building has a locked steel door at its southeast corner and an 8 ft. shutter door on its western side. It is equipped with a water sprinkler system and 2 CO<sub>2</sub> fire extinguishers. Hazardous waste is stored in six fire proof cabinets, pending packaging into lab-packs for manifested disposal by-a-commercial incinerator or landfilling.

D. Contingency Plan for F.M.I. Blockhouse.

In the event of an emergency release of hazardous waste, the immediately responsible coordinators are:

Mr. Steven Pico, Hospital Center Safety Officer  
Chicago Lying-in-Hospital, Room 12, Tel: 962-1733

Non-releasble

and Professor Norman H. Nachtrieb, University Safety Officer  
Office: Searle Chemistry Laboratory, Room 117, Tel: 962-7094  
[REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED]

They will assess the degree of hazard and take the following action:

- a.) Clean up and decontaminate the affected area in the event of a simple spill.
- b.) Alert the University Security Department (962-8181) if fire is involved.
- c.) Evacuate personnel from the area if required. This is an unlikely eventuality because the building is a free-standing isolated masonry structure, with no regular occupants.
- d.) Advise City Fire Department personnel concerning the kind of hazardous waste and its location.

July 5, 1983



Norman H. Nachtrieb  
University Laboratory Safety  
Officer



# FIGURE 1

C.F.D.

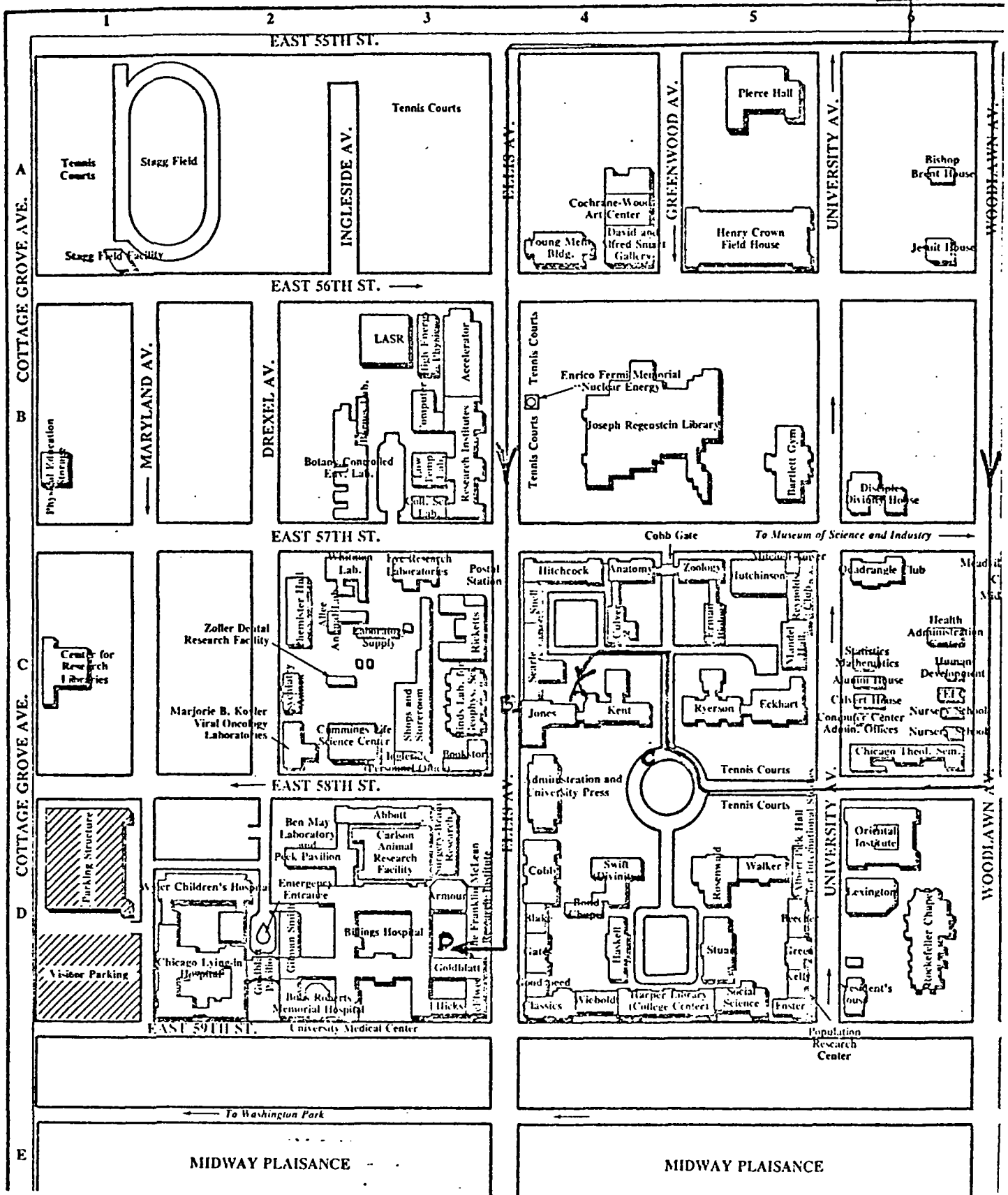
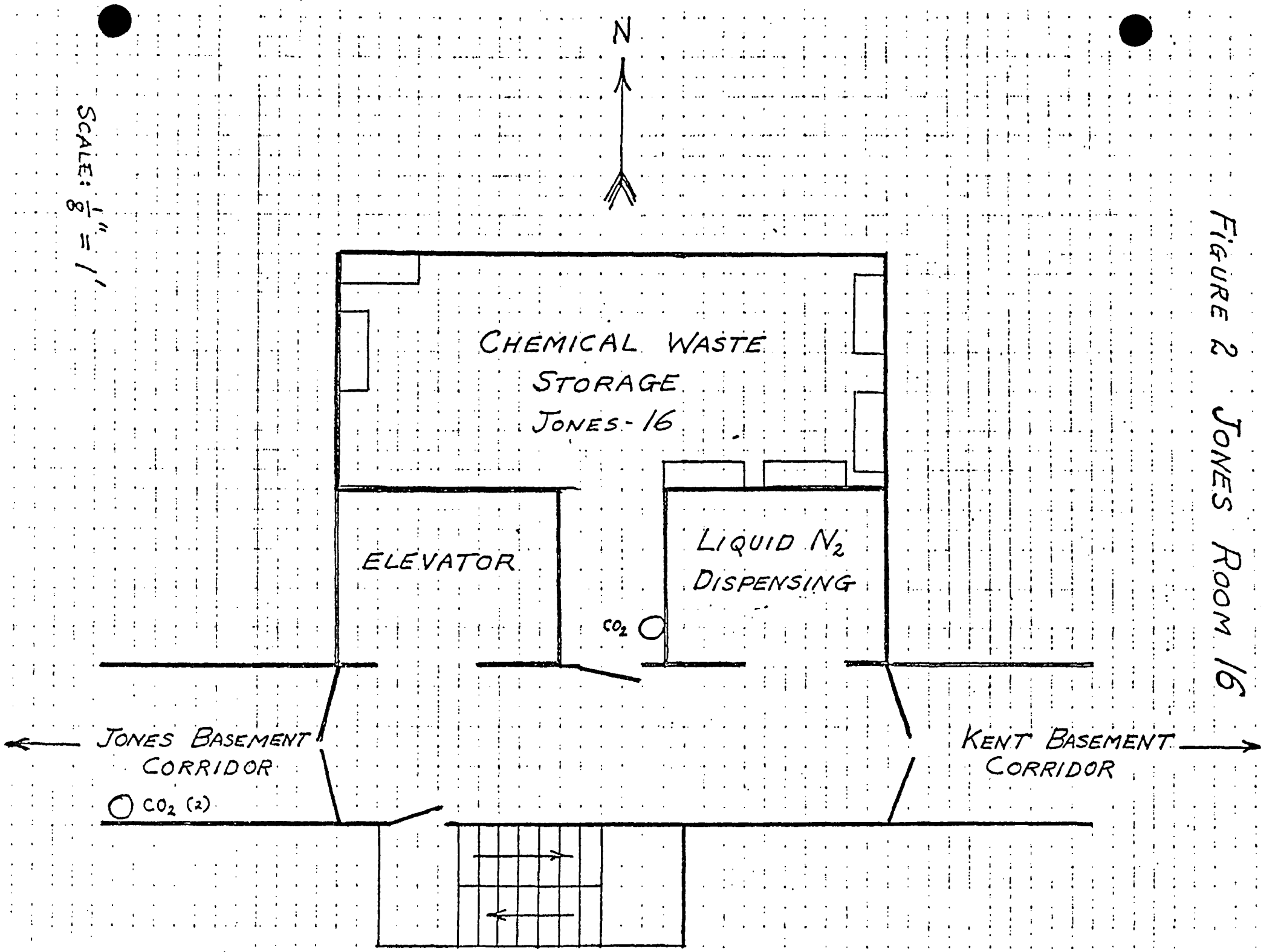


Figure 2 Jones Room 16



● FIGURE 3

GOLDBLATT HOSPITAL

COURTYARD

FMI BLOCKHOUSE

ALCOHOL  
STORAGE

LOW-LEVEL  
RADIOACTIVE WASTE  
STORAGE

CHEMICAL WASTE  
STORAGE

FRANKLIN McLEAN  
RESEARCH INSTITUTE

SCALE:  $\frac{1}{16}'' = 1'$

GATE

59<sup>TH</sup> ST.

— ELLIS AVE —

November 8, 1988

AMENDMENT OF  
HAZARDOUS SOLID WASTE CONTINGENCY PLAN  
THE UNIVERSITY OF CHICAGO  
US EPA Interim Permit No. ID ILD005421136  
IEPA Permit No. 0316410001

CONTINGENCY PLAN

This section presents the amended contingency plan currently employed by The University of Chicago to minimize hazards to human health or the environment from fires, explosions, or any sudden releases of hazardous waste to the air or soil.

1 General Information:

General information is provided concerning the hazardous waste storage facility:

Facility Name -	Laboratory Services Building
Location -	The University of Chicago, Chicago Illinois
Operator -	The University of Chicago

Laboratory Services Building is a receiving point for waste chemicals from The University of Chicago Hospitals and teaching facilities. Chemicals are received at the facility, sorted and segregated, and stored until a disposal contractor comes on-site to lab pack them. Chemicals are normally received in original containers; usually glass or plastic bottles ranging in size from a few ounces to approximately one gallon. Flammable chemicals may be consolidated into 55-gallon drums for ease of storage and disposal.

2 Emergency Coordinators:

Primary Coordinator:	Dr. Sam Wang 6041 Blackstone Avenue or 5737 S. Ellis Avenue The University of Chicago Chicago, Illinois Office Phone: 753-0829 or 702-7051 <b>Non-releasble</b>
----------------------	---

Alternate Coordinator:	Roy Mackal Young Building, Room 307 The University of Chicago Chicago, Illinois Work Phone: 702-3416
------------------------	--

3 Implementation:

Any spill or incident occurring at Laboratory Services Building is reported directly to Campus Security Office. Campus Security notifies the coordinator and appropriate response agencies such as the city fire department.

4     Emergency Response Procedures:

4a    Notification:

Personnel at Laboratory Services Building will be initially notified by voice. The facility is small enough that a voice amplification system is not required. The facility operator or anyone identifying a problem will notify Campus Security by dialing 123 from a campus phone or 702-8181 from a non-campus phone.

Campus Security will immediately notify the emergency coordinator facility who will respond and assess the problem. Local law enforcement, fire department, and medical facilities will be notified by Campus Security if off-campus personnel or property are endangered.

4b    Identification of Hazardous Materials:

There are several methods for identifying hazardous materials involved in the incident. Initially, the emergency coordinator will try to identify markings on containers by item description and area of the facility it's stored in. The emergency coordinator will compare inventory logs to storage locations to determine chemicals that may be involved.

4c    Assessment:

Once the material has been identified, hazards can be assessed by referring to several information sources. Among these are DOT P5800.3 Emergency Response Guidebook, or CHEMTREC. Once hazards are known, an evacuation can be calculated and notifications made by Campus Security. Notifications that may be required include:

Local Law Enforcement Agencies  
Local Firefighting Agencies  
EPA National Response Center

4d    Control Procedures:

City fire department will be notified by Campus Security to respond immediately to any fire, explosion or release of hazardous materials. The fire department will contain and control any fire involved at the facility with the assistance of the emergency coordinator.

4e    Prevention of Reoccurrence of Spread of Fires, Explosions or Releases:

City fire department will use its resources in normal firefighting operations to control spread of fire and prevent explosions. Spill releases will be controlled through use of absorbents as described in the contingency plan.

4f Storage and Treatment of Released Material:

Material released as a result of spills or leaks will be cleaned up using an absorbent material such as vermiculite. Material will be picked up and placed in appropriate storage containers for disposal through The University of Chicago's normal waste disposal contractor.

4g Incompatible Waste:

The facility manager will remove all waste from the spill area for ease of clean-up. The facility will not accept new waste until the spill has been cleaned up and controlled.

4h Post-Emergency Equipment Maintenance:

All equipment involved will be decontaminated or replaced prior to resuming normal operation in the Laboratory Services Building following conclusion of emergency response and clean-up procedures. No new waste will be accepted at the facility until all emergency equipment is back in normal operation.

4i Container Spills and Leakage:

Chemicals stored at the facility are in either 55-gallon drums or small, one-gallon or less bottles. A spill will be immediately absorbed using either vermiculite or spill control pillows maintained at the facility. Chemical leaks in a 55-gallon drum will be transferred to a non-leaking container for disposal. All spills, leaks, and clean-up materials will be controlled immediately.

4j(1) Tank Spills and Leakage:

The University of Chicago facilities do not store hazardous waste in tanks.

4j(2) Spills and Leaks From Tanks Containing Particular Chlorinated Dioxins, - Dibenzofurans, and - Phenols:

The University of Chicago facilities do not handle these chemicals as hazardous waste.

4k Waste Pile Spills and Leakage:

The University of Chicago facilities do not store hazardous waste in waste piles.

4l Surface Impoundment Spills and Leakage:

The University of Chicago facilities do not store hazardous waste in surface impoundments.

4m Incinerator Spills and Leakage:

The University of Chicago facilities do not use incineration as a hazardous waste disposal method.

4n Landfill Leakage:

The University of Chicago facilities does not operate a landfill.

5 Emergency Equipment:

An emergency shower and eyewash are located by the doorway leading from the office/chemical sorting area to the storerooms.

Two Class ABC fire extinguishers are located in the office/chemical sorting room and one Class D fire extinguisher is located in the hallway between the storage rooms. The facility is equipped with a smoke detector system that alarms directly at the Campus Security Office.

Half-face and full-face respirators suitable for organic vapor and acid gases are located in the office/chemical sorting room. The facility operator also has respirators located in his office.

Lab coats, face shields, and rubber gloves are located in the chemical sorting area.

6 Coordination Agreement Requirements:

The University of Chicago maintains its own campus security and medical facility. The City fire department is the response agency to any incidents occurring at the Laboratory Services Building. The support agreement is in the process of being arranged.

7 Evacuation Plan:

Evacuation of the facility will be initiated by voice signal to personnel inside. Evacuation from the area will be made by Dorchester Avenue north to Midway Plaisance. Alternate evacuation route would be to go south on Dorchester Avenue. Evacuating routes for facility are shown on the charts attached.

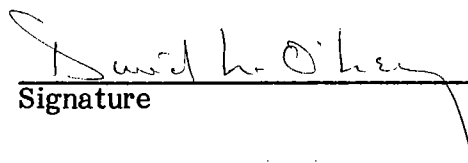
8 Required Reports:

A follow-up report detailing the incident, emergency response, clean-up, and actions taken to prevent reoccurrence will be prepared and submitted to the Illinois EPA within 15 days of occurrence. All records concerning the incident and report will be maintained by the facility operator until three years after final closure of the Laboratory Service Building. Reports are maintained at the facility operator's office.

9     Certification:

The following individual, representing the The University of Chicago, certifies that the Hazardous Solid Waste Contingency Plan has been prepared in accordance with the US EPA regulations (40 CFR 264, subpart D).

THE UNIVERSITY OF CHICAGO

  
\_\_\_\_\_  
Signature

\_\_\_\_\_  
David L. O'Leary

\_\_\_\_\_  
Assistant Vice President

\_\_\_\_\_  
November 8, 1988



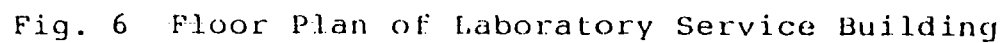


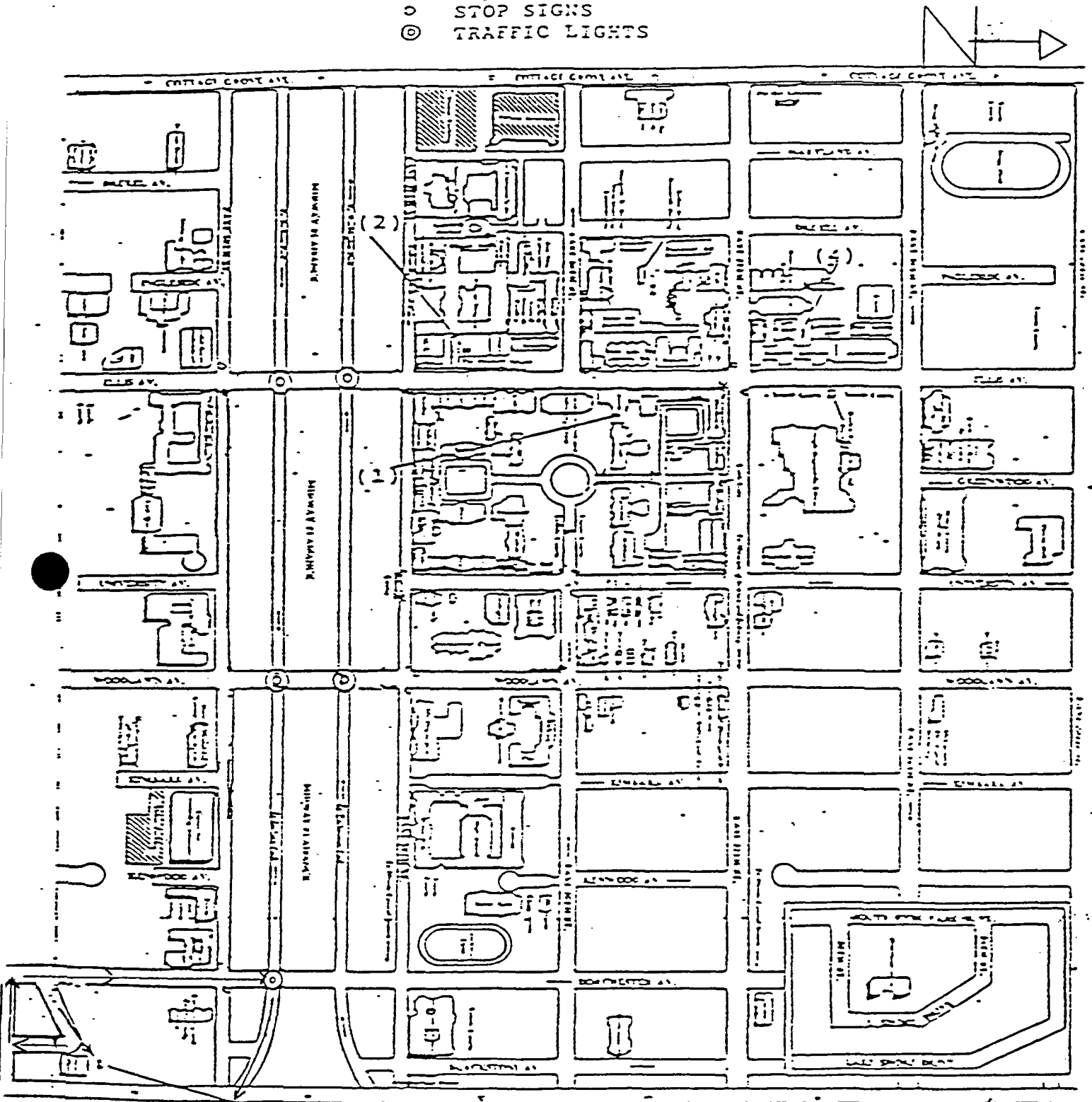
Fig. 6 Floor Plan of Laboratory Service Building

# HAZARDOUS WASTE TRANSPORT ROUTE

FIG. 2 University of Chicago Map

- (1) George Herbert Jones Laboratory
- (2) Franklin McLean Research Institute Blockhouse
- (3) Laboratory Service Building
- (4) Research Institute

○ STOP SIGNS  
 ◎ TRAFFIC LIGHTS



(3)

The primary traffic volume is located on Midway Plaisance. Transportation from accumulation points to the storage facility requires crossing Midway on Ellis Avenue and Woodlawn Avenue. Crossing is performed at intersections where traffic lights are present.

The electric vehicles used for transporting the chemicals are designed for normal sidewalk load-bearing capacities. No problems are anticipated with the adequacy of the sidewalk or roadway surfaces' load-bearing capacity. Typical Load: 400 lbs. (50 one-gallon bottles) and electric vehicle weight of about 1000 lbs.

---

Off-Site Hazardous Waste Shipping		
Material	Vehicle	Comments
<hr/>		
Scintillation Vials	6-Wheel Truck	4 Loads/Year, 20 Drums/Load 200 lb/Drum, Approx. 4,000/lbs./Load
Flammable Liquid	3,000 Gallon Tank	2 Loads/Year, 1,000 lbs./Load
Lab Pack Waste	6-Wheel Truck	3 Loads/Year, 2,000 lbs./Load

---

Roadway surfacing along off-site shipping route is paved, city streets. Streets used by the commercial vehicles are not marked as restricted, and should be capable of supporting commercial vehicle traffic. Vehicles used for transporting the waste are smaller commercial trucks.

C. WASTE CHARACTERISTICS

C-1 Chemical and Physical Analyses:

The majority of the chemicals received at the facility are unused portions of raw chemicals in the original container or chemicals used in experiments where the constituents are known. If chemicals are received that have unknown qualities or constituents, analysis is performed by the contractor performing disposal of the chemicals. Unknown chemicals are not normally received at the facility; the quantity averages approximately 20-30 small bottles per year.

The University of Chicago will satisfy one of the following two conditions in order to store any waste in the hazardous waste storage areas:

1. A Material Safety Data Sheet (MSDS) available which shows what the waste is incompatible with.
2. A detailed chemical analysis to demonstrate which group of compatibility listed in 40 CFR Part 264, Appendix V, the waste belongs in.

Following are typical chemicals stored in the Laboratory Services building. A complete list is not feasible since it varies by the type of chemicals being used in the University laboratories. The listing is broken down by storage area within the facility.

Flammable Storage Room: [Basis for designation - 40 CFR 261.21]. Chemicals stored in the Flammable Storage Room include ethers, toluene, benzene, hexane, ketones, alcohols, used silica gel, phenyls, hydrazine waste, xylene, methylene chloride, pyridine, and various other flammable materials. Containers range in size from small bottles containing only a few grams of material to gallon or larger size containers.

Toxic Storage Room: [Basis for designation - 40 CFR 261.24]. Chemicals stored in the Toxic Storage Room include cyanides, lead salts, chromates, bromine, mercury salts, chromium waste, and miscellaneous other toxic chemicals. Container sizes range from small size containing only a few ounces to one gallon bottles.

Reactive Storage Room: [Basis for designation - 40 CFR 261.23]. Chemicals stored in the reactive storage room include ether anhydrous, silane waste, phosphorus pentoxide, acid halides, alkali metals, and miscellaneous other reactive chemicals. Bottles range in size from small containers holding only a few ounces to one gallon jars.

Corrosives Room: [Basis for designation - 40 CFR 261.22]. Chemicals stored in the corrosives room include hydrochloric acid, potassium hydroxide, ammonium hydroxide, sulphuric acid, chromic acid, and miscellaneous other corrosive chemicals. Containers range in size from pint jars to one gallon bottles.

Drum Flammable Storage Room: Chemicals stored in the drum flammable storage room include flammable solvents that have been consolidated into 55-gallon drums. Chemicals in the drums are compatible flammable mixtures.

Chemicals received at the Laboratory Services Building are unused or partially used materials in original manufacturers containers. The number of different chemicals is approximately 5,000. Material Safety Data Sheets (MSDS) are available for the chemicals and are used to determine material properties for hazard determination. The MSDS file is maintained at the facility on CD-ROM for IBM-compatible PC computer. The University of Chicago subscribes to the Sigma-Aldrich MSDS program. The program contains 33,000 complete, printable MSDSs, and is updated every three months. The contract disposal firm may elect to perform additional chemical analysis during disposal operation. See Section C-2b for test methods used.

Small quantities of acid such as sulfuric or hydrochloric may be neutralized at the Laboratory Services Building. This process is exempt from treatment standards as elementary neutralization.

C-1a Containerized Waste:

The University of Chicago facility does not store hazardous waste without secondary containment. This paragraph does not apply.

C-1b Waste Tank Systems:

The University of Chicago facility does not store hazardous waste in tank systems. This paragraph does not apply.

C-1c Waste in Piles:

The University of Chicago facility does not store hazardous waste in piles. This paragraph does not apply.

C-1d Landfilled Waste:

The University of Chicago facility does not operate a landfill. This paragraph does not apply.

C-1e Wastes Incinerated and Wastes Used in Performance Tests:

The University of Chicago facility does not incinerate hazardous waste and does not use waste in a performance test. This paragraph does not apply.

C-1f Wastes to be Land Treated:

The University of Chicago facility does not perform hazardous waste land treatment. This paragraph does not apply.

## C-2 Waste Analysis Plan:

A waste analysis plan is included in the attachment section of this report. This plan includes various methods to test chemical identity.

Spilled waste material will be contained in a non-lead container. Identification will be made based upon identification of the original container. In the event no identification is possible, a sample will be sent to a contract laboratory and analysis will be performed for hazardous waste characterization using EPA-approved methodology.

### C-2a Parameters and Rationale:

General screening of chemicals is performed as they enter the facility. Parameters chosen for the screening include literature search, corrosion test, compatibility test, flash point test, and reactivity test. These tests were chosen to screen the chemicals in order to determine proper storage within the facility. Since the majority of chemicals stored at the facility are in original containers or part of chemistry lab experiments where constituents are known, no further analysis is performed.

Chemicals with unknown characteristics or constituents are analyzed for hazardous waste characteristics by the disposal contractor. See Section C-2b for specific tests involved.

Wastes of unknown compatibility cannot be stored with any other waste in the hazardous waste storage areas. Compatibility and material toxicity for storage will be determined using information available from the Material Safety Data Sheets. Based on information obtained, the waste will be segregated to proper storage areas within the facility.

### C-2b Test Methods:

Analytical procedures described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)" and "Hazardous Waste Management System; Identification and Listing of Hazardous Waste; Toxicity Characteristics Revision" published in the Federal Register, March 29, 1990 (55 FR 11798) and June 29, 1990 (55 FR 26986), are used for identifying unknown wastes.

<u>Parameter</u>	<u>Method</u>
Corrosivity	SW-846 (#9045)
Ignitability	SW-846 (#1010)
Reactivity	SW-846 (Section 7.3.3.2 and 7.3.4.1)
Toxicity (TC)	55 FR 11798, 55 FR 26986 (TCLP)

C-2c Sampling Methods:

Chemicals stored at the facility are in small bottles ranging from a few ounces per bottle to approximately one gallon per bottle. A small amount is poured into a sample bottle or a pipette is used for extracting a sample from the bottle if analysis is required. A pipette is used to collect a sample of each layer if material in the bottle appears to be layered.

C-2d Frequency of Analyses:

Analyses for screening purposes is done when chemicals are brought to the facility. Analyses for unknown chemicals is performed by the disposal contractor only when unknowns are received at the facility.

C-2e Additional Requirements For Waste Generated Off-Site:

The University of Chicago facility does not accept waste from off-site. This paragraph does not apply to this application.

C-2f Additional Requirements For Ignitable, Reactive or Incompatible Waste:

Waste materials entering the facility are segregated into storage locations, based upon their hazard characteristics. The hazard characteristics are determined from a review of Material Safety Data Sheets, and segregation is performed to prevent mixing of incompatible materials in the same storage location.

C-2g Waste Analysis Requirement for Land Disposal Ban:

The University of Chicago will determine if identified wastes are restricted from land disposal prior to pickup by the disposal contractor. A notice will be submitted with restricted waste which includes the following information:

1. USEPA Hazardous Waste Number
2. Corresponding Treatment Standard
3. Manifest Number
4. Waste Screening and/or Analysis Data

Restricted waste which can be land disposed without further treatment will be submitted with a notice that includes, in addition to the above-listed information, the following signed certification:

I certify under penalty of law that I personally have examined and am familiar with the waste through analysis and testing or through knowledge of the waste to support this certification that the waste complies with the treatment standards specified in 35 Ill. Adm. Code 728, Subpart D and all applicable prohibitions set forth in 35 Ill. Adm. Code 278.132, 728.139, or Section 3004(d) of the Resource Conservation and Recovery Act. I believe that the information I submitted is true, accurate and complete. I am aware that there are significant penalties for submitting a false certification, including the possibility of a fine and imprisonment.

C-3 Quality Assurance

A quality assurance plan for SET Environmental, Tenco Laboratories, and Aqualab, Inc., are included in the attachment section of this report. All analyses are performed by SET Laboratory or these subcontractor affiliates.

The University of Chicago will perform a quality control check on 10% of the items in the inventory at the Laboratory Services Building, once per year. The check will involve selecting 10% of the materials stored and submitting them to a contract laboratory for analysis using EPA methodology. See Section C-2b for test methods used. The analysis will be used to verify information obtained from the manufacturer's Material Safety Data Sheets.



D. PROCESS INFORMATION

D-1 Containers:

D-1a Containers With Free Liquids:

D-1a(1) Description of Containers:

Chemicals are received at the facility in manufacturer's original containers from laboratories and medical operations. Compatible ignitable wastes are poured into 55-gallon drums after being received at the facility. This procedure reduces the number of small containers stored at the facility and reduces disposal costs.

Principal chemical storage containers in the facility are glass bottles ranging in size from small vials to large, one-gallon size bottles. Quantity varies with activity at the University, but could range up to several hundred bottles of varying sizes. Bottles are primarily original chemical storage containers as shipped from the manufacturer.

Flammable liquids are consolidated into 55 gallon polyethylene drums. The drums are initially purchased new, but can be reused several times, since the contents are emptied into a tank truck for transport to disposal. The drum weight is 23.8 pounds, with a wall thickness of 0.125 inches. A hazardous waste label is placed on each drum. Scintillation vials are labpacked into 55 gallon DOT-17H steel drums lined with 4 millimeters of plastic and an absorbing material (vermiculite).

Chemicals are logged into a log book upon receipt at the facility with the following information: accumulation start date, source laboratory name, quantity, material, type of storage container used, if material was consolidated with other waste, and storage room. Chemical containers with missing or partial labels are labeled appropriately. A copy of the log book is maintained with U of C security to allow immediate access to emergency personnel. The security office copy is updated weekly. An example of the log book is attached.

Fifty-five gallon drums are labeled with a hazardous waste label specifying the chemical names, EPA identification number, EPA hazardous waste number, and accumulation start date.

D-1a(2) Container Management Practices:

Containers of waste are received at the facility in the main sorting/testing room. Waste materials are categorized using screening requirements outlined previously to determine proper storage location within the facility.

Each container is received at the facility and logged into a log book as described in Section D-1a(1). After general screening, chemicals are placed in the proper storage room. Flammables may be consolidated into 55-gallon drums or stored on shelves in the flammable storage room. Toxic, reactive and corrosive wastes are stored in the appropriate room on shelves. Containers remain sealed until the disposal contractor arrives on-site to place them in 55-gallon drums for disposal. The exception is ignitable waste consolidated in drums. The diagram on p. 30A shows the location of drums and shelves used to store waste in the storage rooms.

The facility contains four separate storage locations for various chemicals. This allows for segregation of non-compatible chemicals and increased efficiency in disposal.

The flammable storage room contains five metal shelf units with five shelves per unit and 55-gallon drums for consolidation of flammable liquids. Chemical containers are stored on shelves in such a manner that labels are clearly visible from the front. Larger bottles are placed on lower shelves and smaller containers are placed on upper shelves. This allows a safety measure for minimizing spillage. Large containers that may not fit on the shelves are set on the floor. Storage shelves and drums are all placed along walls. Drums are not stacked.

The toxic storage room contains one metal shelf unit with five shelves placed along the south wall. Containers are primarily one gallon glass bottles which are placed on the lower shelves. Smaller containers are placed on upper shelves.

The reactives storage room contains one metal shelf unit with five shelves placed along the south wall. Containers are primarily one gallon glass or plastic bottles which are placed on lower shelves. Smaller containers are placed on upper shelves.

The corrosives room contains one metal shelf unit with five shelves placed along the south wall. Container sizes are primarily one gallon glass jars and a five gallon plastic container stored on lower shelves. Smaller bottles such as pint glass jars are stored on upper shelves.

Drums are filled and remain in the flammable storage area inside the facility until removed by the licensed waste management contractor.

Incoming scintillation vials packed in cartons are initially placed on shelves in the flammable storage room. As soon as the vials are labpacked into a 55-gallon drum, the full drum is taken to and placed on the exterior concrete pad for temporary storage (less than 90 days) until a contract disposal firm collects them.

Chemicals are transported within the facility by hand carrying. Containers are small and light enough that no special handling equipment is required. Fifty-five gallon drums containing scintillation vials are transported from the packing area in the flammable room to the outside pad using a drum dolly.

D-1a(3) Secondary Containment System Design and Operation:

The laboratory annex, flammable, toxic, reactive, and corrosives storage rooms are segregated from the facility by three-inch curbs and ramps at the doors (see diagram, p. 23a). Walls are concrete masonry sealed to the floor with concrete. Containment in each room is approximately 30 gallons which is sufficient to contain volume of the largest container and more than 10% of maximum waste stored in the room.

Containment volume in the flammable storage room is approximately 370 gallons, which exceeds volume of the largest container and is greater than 10% of total waste stored in the room.

The concrete storage pad behind the facility only houses 55-gallon drums filled with scintillation vials.

D-1a(3)(a) Requirement For the Base or Liner to Contain Liquid:

The base in all storage rooms is free of cracks or gaps. Floor drains inside the building are covered by screw caps and sealed with concrete (see diagram, p. 23a).

All parts of the containment system (floors, curbs) in all of the rooms, and the pad behind the facility are constructed of poured concrete. The floors and curbs will be coated with a premium protective epoxy coating by June 30, 1990. The coating material, Tigerbond 221, is resistant to solvents, corrosive effects and fumes, moisture, immersion, acids, alkalis and caustics, as well as heavy-duty abrasion (See p. 23b).

D-1a(3)(b) Containment System Drainage:

Chemicals stored in the toxic storage, reactive storage, and corrosives storage rooms are elevated off the floor by metal shelf units. Chemicals contained in the flammable storage room are elevated off the floor by metal shelf units and larger containers are placed directly on the floor. The floor in the laboratory annex is sloped to a center floor drain area. Spills would flow toward the drain, which has been covered by a screw cap, to facilitate clean-up.

NEW & IMPROVED!

## DURAPOXY

Anti-Graffiti Epoxy  
Coating System

Never Strip Off Coatings  
Ruined by Graffiti Again!



- USDA Approved for Food Processing Areas
- Ideal for Rest Rooms, Corridors, Cafeterias

Finally, the solution to your graffiti problems! The revolutionary DURAPOXY anti-graffiti system adds a rock-hard finish that's impossible to penetrate. Crayon, ink and paint markings clean right off with safe, bio-degradable DURAPOXY CLEANER.

Solvent-free DURAPOXY couldn't be easier to use. With a no-fault 1:1 mixing ratio, all you do is mix and apply with brush, roller or spray equipment as easily as with a conventional coating. Top coating with DURAPOXY SEALER gives you superior resistance to strong solvents, chemicals and staining that remains unequalled.

The DURAPOXY system can be used on top of fresh concrete as well as over surfaces with existing paint as long as the surface is prepared properly. Coverage: approx. 400 sq. ft. per 2 gal. unit for both DURAPOXY and DURAPOXY SEALER.

Colors: Dark/Light Green, Dark/Light Blue, White, Bright/Light Yellow, Grey, Black, Light/Dark Brown, Canyon Red, Tile Red.

DURAPOXY	Pkg.	Prod.#	Price
1,200 sq. ft.	3 units	162110	\$147.90/unit
800 sq. ft.	2 units	162110	149.39/unit
400 sq. ft.	1 unit	162110	150.90/unit

DURAPOXY CLEANER	Pkg.	Prod.#	Price
55 gal.	11-5 gal. pails	162010	\$19.51/gal.
30 gal.	6-5 gal. pails	162010	19.71/gal.
5 gal.	1-5 gal. pail	162010	20.11/gal.

DURAPOXY SEALER	Pkg.	Prod.#	Price
1,200 sq. ft.	3 units	161910	\$278.60/unit
800 sq. ft.	2 units	161910	281.42/unit
400 sq. ft.	1 unit	161910	284.26/unit

# TIGERBOND 221

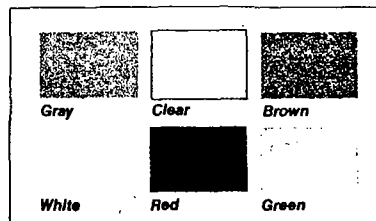
Revision 4  
September 14, 1990

## Premium Protective Epoxy Coating

Add Years of Life to Concrete, Wood and Metal Surfaces

Protects for Years ...  
Cleans with Ease!

Resists Steel Wheels



- Resists Impact, Corrosion and Abrasion
- Reduces Maintenance Time and Costs
- Beautifies with a Porcelain-Like Finish

TIGERBOND 221 leads the pack in epoxy maintenance finishes because of its broad spectrum of applications. Now at last you get maximum protection against chemicals and heavy-duty abrasion ... as well as against corrosive effects and fumes, moisture immersion, acids, alkalis and caustics. USDA approved, TIGERBOND 221 is the choice for protecting floors, walls, building exteriors, conveyors and chutes, machinery and structural steel.

The durable, porcelain-like finish in five handsome colors provided by TIGERBOND 221 upgrades the appearance of all your industrial and institutional areas while it reduces daily clean-up and long-term maintenance costs for many years to come.

Whether you prefer roller, brush or spray, application is a snap with the no-fault 1:1 mixing ratio of TIGERBOND 221. When using this premium epoxy coating to protect floors, we recommend top coating with GARON HI-GLOSS to extend the life of your new floor, especially in high traffic areas.

Drying Time: 6-8 hours. Coverage: approx. 400 sq. ft. per 2 gal. unit.

TIGERBOND 221	Pkg.	Prod.#	Price
1,200 sq. ft.	3 units	22110	\$150.60/unit
800 sq. ft.	2 units	22110	152.12/unit
400 sq. ft.	1 unit	22110	153.66/unit

## PERMA-SEAL

Epoxy Curing and Sealing Compound  
Cure and Seal Concrete Surfaces



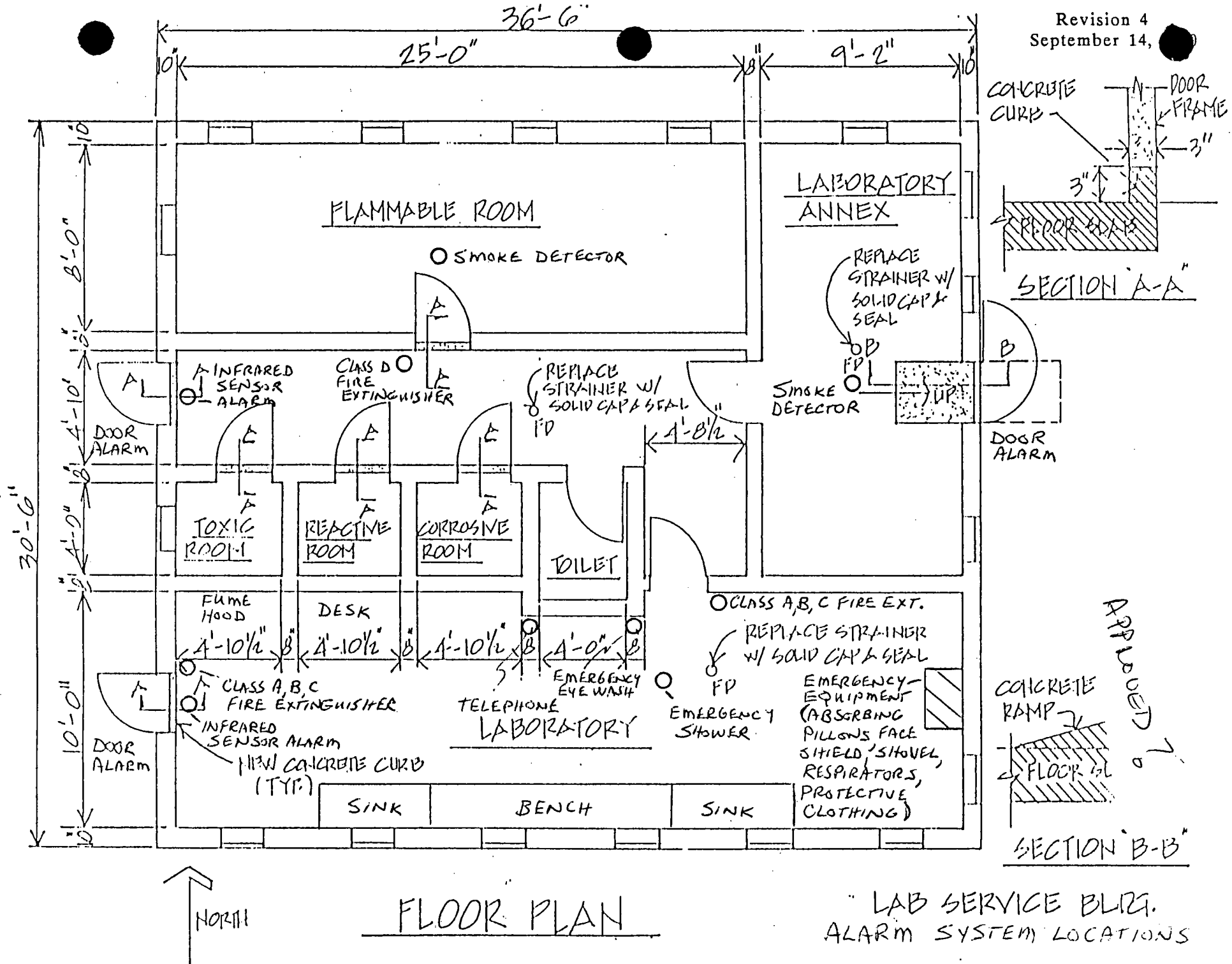
- Resists Chemical Attack
- Revitalizes Old Concrete, Cures New Concrete

For extended life and protection of concrete surfaces, brush, roll, or spray on clear PERMA-SEAL. Its deep penetrating action provides a long-lasting seal against freeze-thaw, salt, staining, "dusting" and destruction of reinforcing steel supports. Protect your investment in any new concrete pour with clear PERMA-SEAL.

Drying Time: 8-10 hours.

Coverage: 400-600 sq. ft. per 2 gal. unit.

PERMA-SEAL	Pkg.	Prod.#	Price
2000 sq. ft.	4 units	23510	\$136.29/unit
1000 sq. ft.	2 units	23510	137.27/unit
500 sq. ft.	1 unit	23510	139.06/unit



D-1a(3)(c) Containment System Capacity:

Room	Room Dimension	Containment Height	Containment Volume	Allowable Volume	Largest Container	Estimated Storage
Flammable Storage	8' x 25'	3"	370 gal.	3,700 gal.	1 gal.	100 gal.
Toxic Storage	4' x 4'	3"	30 gal.	300 gal.	1 gal.	25 gal.
Reactive Storage	4' x 4'	3"	30 gal.	300 gal.	1 gal.	25 gal.
Corrosive Storage	4' x 4'	3"	30 gal.	300 gal.	5 gal.	25 gal.

The following calculations were used to obtain the containment system capacities listed in the table above:

A. Flammable Storage Room

$$\begin{aligned} \text{Containment Volume (gal)} &= \text{Containment Dimensions (ft}^3\text{)} \\ &\times 7.48 \text{ gal/ft}^3 = (8' \times 25' \times 0.25') \times 7.481 \text{ gal/ft}^3 \\ &= 370 \text{ gal.} \end{aligned}$$

B. Toxic, Reactive and Corrosive Rooms

$$\begin{aligned} \text{Containment Volume (gal)} &= \text{Containment Dimensions (ft}^3\text{)} \\ &\times 7.481 \text{ gal/ft}^3 = (4' \times 4' \times 0.25') \times 7.481 \text{ gal/ft}^3 \\ &= 30 \text{ gal.} \end{aligned}$$

D-1a(3)(d) Control of Run-On:

Run-on control is not required for storage inside the facility. The building is sealed to prevent heavy precipitation from entering the facility.

D-1a(4) Removal of Liquid From Containment System:

Waste spills or leaks inside the containment systems in the storage rooms would be small quantities due to the small storage containers. Waste water will be cleaned up using spill adsorption material (containment pillows) and will be placed into storage containers for disposal. Spill cleanup on the outside storage pad will be accomplished using absorption pillows or other absorption material. Cleanup residue will be placed into proper storage containers for disposal.

If the material is from a known chemical spill, disposal will be accomplished as the appropriate hazardous waste. If the material is from an unknown chemical, laboratory analysis will be accomplished to determine appropriate disposal techniques. See Section C-2b for test methods. If spilled material is non-hazardous waste, it will be managed as a non-hazardous special waste.



D-1b Containers Without Free Liquids:

D-1b(1) Test For Free Liquids:

Majority of chemicals stored in the facility are considered to be free liquids. Small amounts that are not a free liquid are inter-mixed in the same room with free liquids and will be treated as free liquid. Requirements of paragraph D-1b do not apply.

D-2 Tank Systems:

University of Chicago facilities do not use tank systems for waste storage. The paragraphs under D-2 do not apply to this permit application.

D-3 Waste Piles:

University of Chicago facilities do not use waste piles for hazardous waste storage. Paragraphs under D-3 do not apply.

D-4 Surface Impoundments:

University of Chicago facilities do not use surface impoundments for hazardous waste storage. Paragraphs under D-4 do not apply.

D-5 Incinerators:

University of Chicago facilities do not use incinerators for hazardous waste treatment. Paragraphs under D-5 do not apply.

D-6 Landfills:

University of Chicago facilities do not operate landfills for hazardous waste disposal. Paragraphs under D-6 do not apply.

D-7 Land Treatment:

University of Chicago facilities do not perform hazardous waste land treatment operations. Paragraphs under D-7 do not apply.

E. GROUNDWATER MONITORING

E-1 Exemption From Groundwater Protection Requirements:

Subpart F, Groundwater Monitoring Requirements, do not apply to University of Chicago facilities. University of Chicago facilities do not operate treatment or disposal such as waste piles, landfills, or land treatment. The only operation is a container storage facility. Requirements under Paragraph E do not apply.

F. PROCEDURES TO PREVENT HAZARDS

F-1 Security:

F-1a Security Procedures and Equipment:

F-1a(1) 24-Hour Surveillance System:

The Laboratory Services Building has a 24-hour infrared activated burglar alarm and fire detection system that is connected directly to campus security. Any unauthorized entry into the building will trigger the alarm system and campus security will respond.

The alarm system is an Arrowhead Infrared Detection system. The components of the alarm are shown on the facility diagram on page 27a. The alarm system is tested whenever it is activated by the facility operator.

F-1a(2) Barrier and Means to Control Entry:

F-1a(2)(a) Barrier:

The exterior of the facility is surrounded by a three-foot high fence on the north side and a four-foot high fence on the south side. A stone wall is located on the east side and the building is on the west side. The facility diagram on page 27b shows locations.

F-1a(2)(b) Means to Control Entry:

The active portion of the exterior has a locked gate on the four-foot high fence.

F-1a(3) Warning Signs:

The facility has a warning sign located on each side of the facility on the fence and on each entrance door. The warning sign has the following legend, "Danger-Unauthorized Personnel Keep Out". Signs are legible from a distance of 25 feet.

F-1b Waiver:

No waiver from the security procedures is requested for this facility.

F-2 Inspection Schedule:

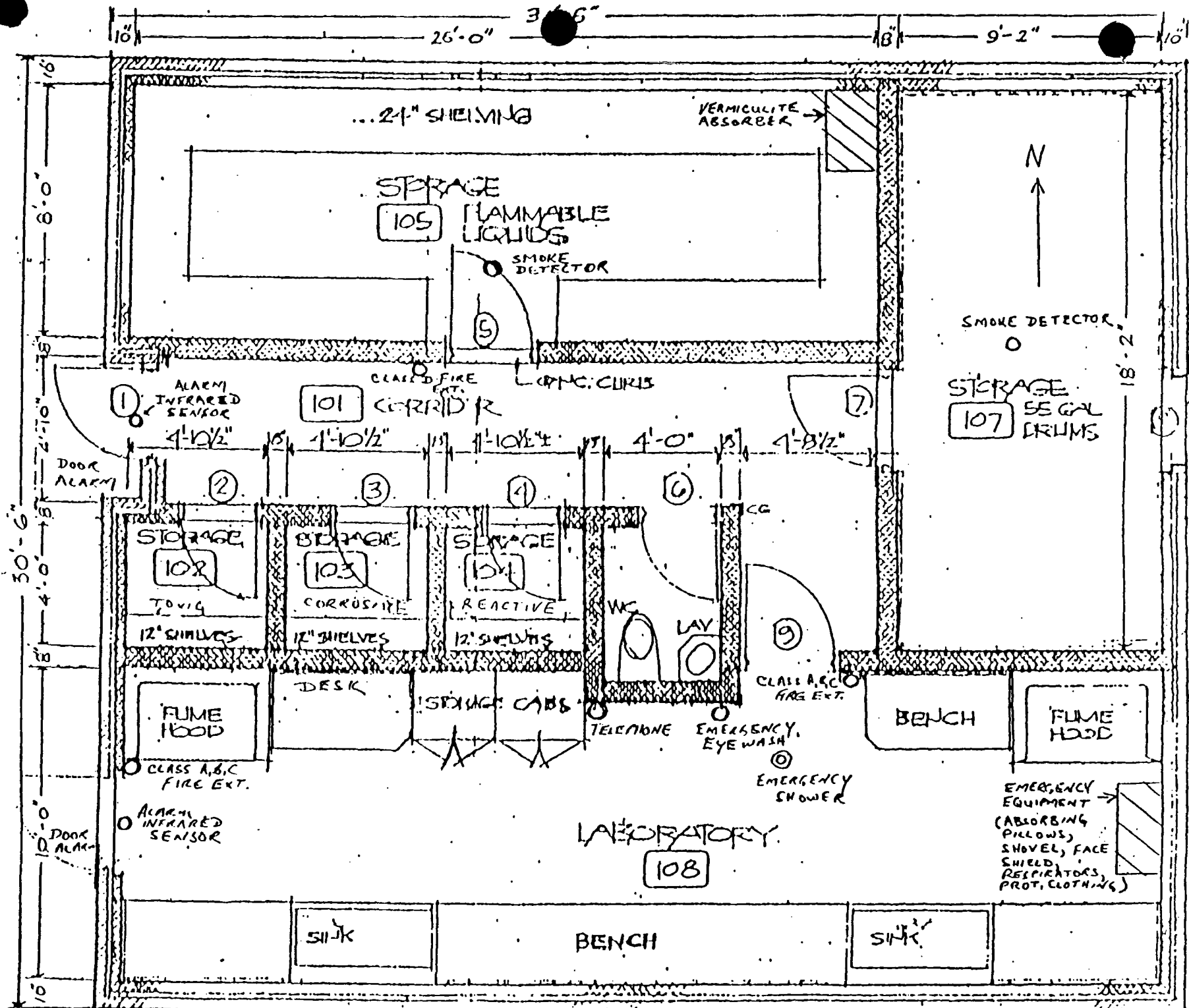
F-2a General Inspection Requirements:

The burglar alarm system is checked by the presence of operational system lights each time it is activated.

Safety and emergency equipment located in the facility is inspected on a weekly basis to insure proper operation. A log of inspections is maintained in the facility in the operator's desk.

DOOR ALARM

0'-0"

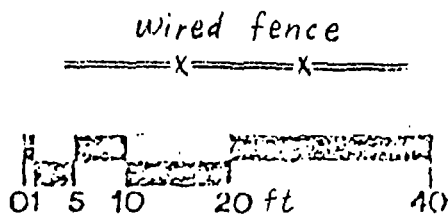
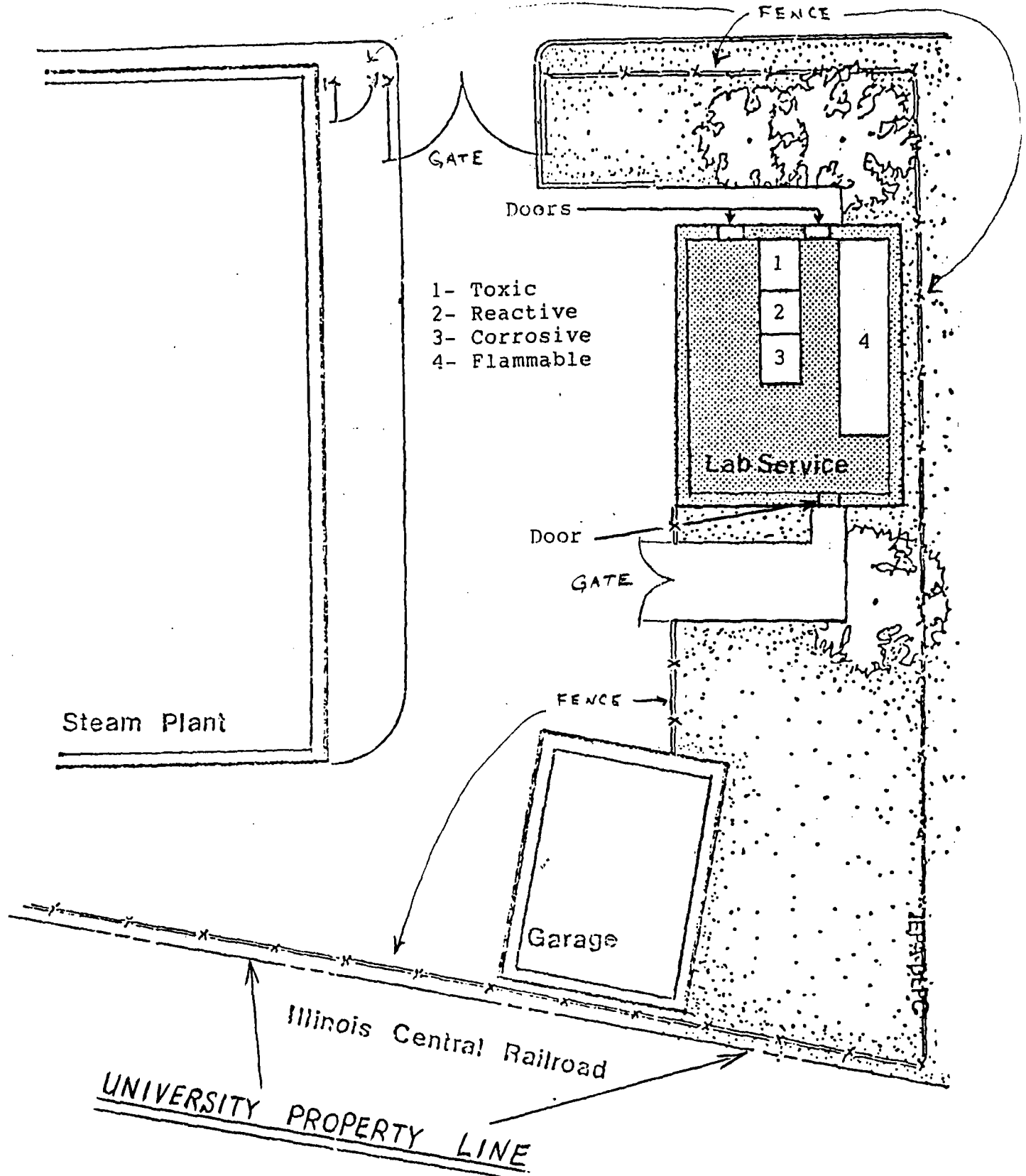


ALARM SYSTEM LOCATIONS

# EXTERIOR PROPERTY LINES

Revision 3  
May 14, 1990

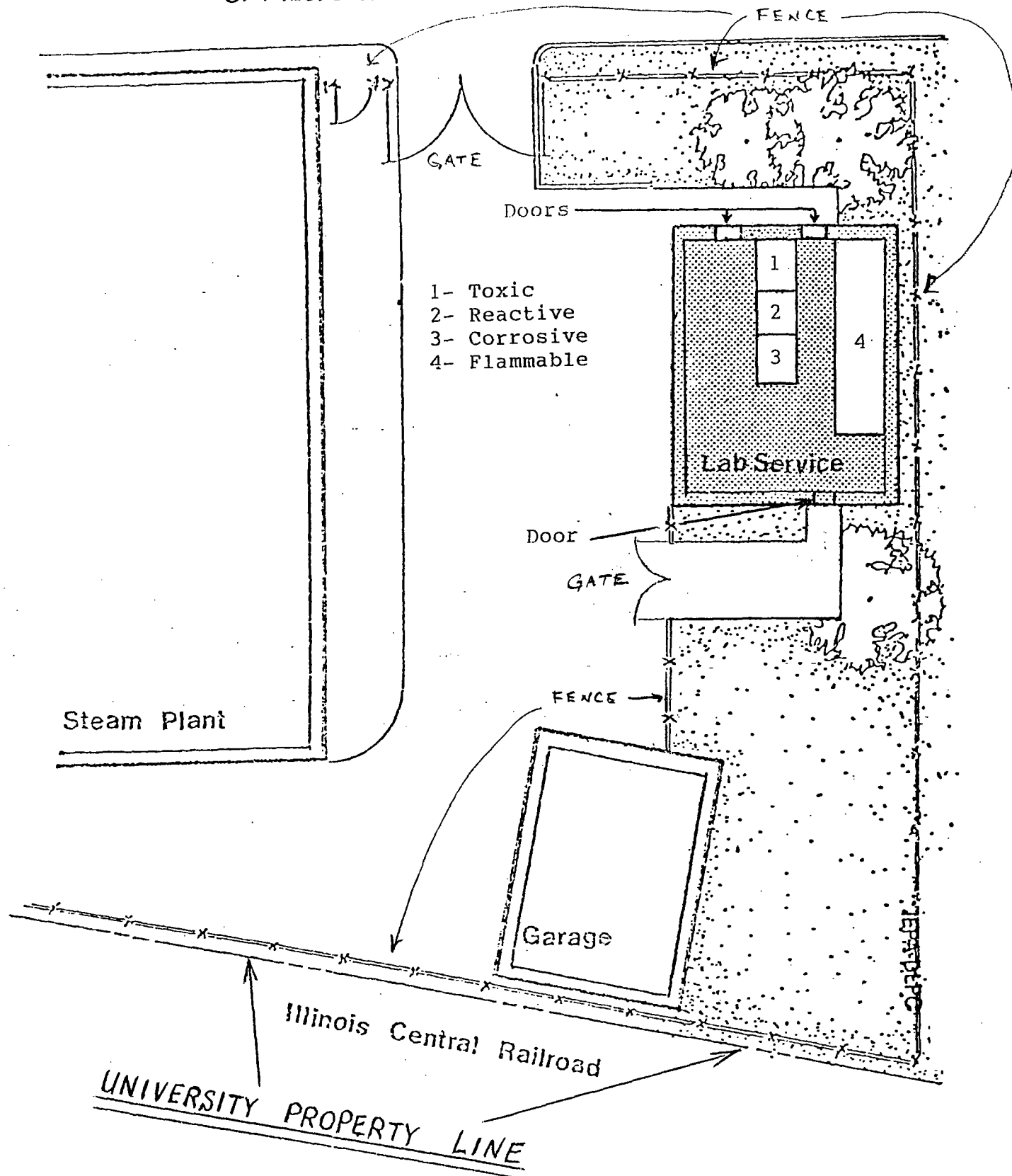
S. Blackstone Ave.



Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRESIDENT  
PHYSICAL PLANNING

S. Blackstone Ave.



wired fence



01 5 10 20 ft 40



Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRESIDENT  
PHYSICAL PLANNING

F-2a(1) Types of Problems:

The inspection schedule lists equipment to be checked and potential problems to look for during the inspection.

F-2a(2) Frequency of Inspections:

The burglar alarm system is inspected each time it is activated. The health and safety equipment and emergency response equipment is inspected on a monthly basis. The telephone communication system to the facility is inspected each time the facility operator enters.

Container storage areas are inspected on a weekly basis and container loading, unloading, and inspection areas are inspected daily during operation.

F-2b Specific Process Inspection Requirements:

F-2b(1) Container Inspection:

Containers in the storage facilities are inspected on a weekly basis for leaks, spills, and deterioration caused by corrosion or other factors. Leakage or spills detected will be cleaned up and containerized to prevent release to the environment. Containers found to be corroding or deteriorating will be repackaged into proper storage containers.

F-2b(2) Tank System Inspections:

University of Chicago facilities do not use tanks for hazardous waste storage. Paragraphs under F-2b(2) do not apply.

F-2b(3) Waste Pile Liner Inspection For Exemption From Groundwater Protection Requirements

University of Chicago facilities do not use waste piles for hazardous waste storage. This paragraph does not apply.

F-2b(4) Waste Pile Inspection:

University of Chicago facilities do not use waste piles for hazardous waste storage. Paragraphs under F-2b(4) do not apply.

F-2b(5) Surface Impoundment Inspection:

University of Chicago facilities do not use surface impoundment for hazardous waste storage. Paragraphs under F-2b(5) do not apply.

F-2b(6) Incinerator Inspection:

The University of Chicago facilities do not use incineration for hazardous waste destruction. Paragraphs under F-2b(6) do not apply to this permit application.

F-2b(7) Landfill Inspection:

The University of Chicago facilities do not operate landfills for hazardous waste disposal. Paragraphs under F-2b(7) do not apply.

F-2b(8) Land Treatment Facility Inspection:

The University of Chicago facilities do not use land treatment for hazardous waste. Paragraphs under F-2b(8) do not apply.

F-3 Waiver or Documentation of Preparedness and Prevention Requirements:

F-3a Equipment Requirements:

F-3a(1) Internal Communications:

The University of Chicago Laboratory Services Building is small enough that a voice warning can be transmitted to personnel in the building without use of an amplified communication system.

F-3a(2) External Communications:

The University of Chicago Laboratory Services Building has a telephone used for summoning emergency assistance. The system can be used to call any emergency response unit. Normal response call would go through campus security who would notify the proper response agency. The telephone location is shown on diagram, page 27a.

F-3a(3) Emergency Equipment:

Two fire extinguishers are located in the front office/chemical sorting area. The extinguishers are rated Type ABC. There is one Class D fire extinguisher located in the hallway outside the storage rooms.

Bags of vermiculite are stored in the hallway outside of the chemical storage rooms for spill response purposes. Spill control pillows and absorption materials are stored under sinks in the front office/chemical sorting area. Respirators, face shields, and protective clothing are available at the facility.

A shovel is located at the facility for use in picking up spilled materials that have been contained with absorbing materials. The diagram on page 27a shows location of all emergency equipment.



F-3b Aisle Space Requirement:

The chemicals are stored on metal storage shelves in the toxic, reactive and corrosive storage rooms. The shelves are located along the south walls of the rooms, allowing approximately 2.5 feet access space in front of the shelf units. The drums and shelves in the flammable storage room are located along the walls. Aisles in this room are approximately 2.5 feet wide.

Aisle space in the facility is shown on the facility diagram on page 30a.

F-4 Preventive Procedures, Structures, and Equipment:

F-4a Unloading Operations:

Chemicals received at the facility are in small containers, normally one gallon or less. No special equipment is required for loading, unloading, or handling.

Flammable liquids are consolidated in 55-gallon drums for storage in the flammable storage room. Drums are handled using a drum dolly.

F-4b Runoff:

The flammable, toxic, reactive and corrosives storage rooms inside the facility are diked with a three-inch concrete curb to prevent runoff to other parts of the facility and to the outside of building. (See drawing for secondary containment on p. 23a).

F-4c Water Supplies:

Spills or leaks occurring inside the facility would be held inside containment areas. Scintillation vials stored on the exterior pad are in 55 gallon steel drums with plastic liner and vermiculite in them as secondary containment. Containment of materials would prevent contamination of water supplies that may be present in the area.

F-4d Equipment and Power Failure:

No power equipment is required for handling chemicals in the facility. Power outage at the facility should have no detrimental effect on operation.

F-4e Personnel Protection Equipment:

Personnel handling chemicals in the facility during screening and segregating wear laboratory coats, eye protection, and rubber gloves. A NIOSH-approved respirator protection system suitable for organic vapors and acid gases is available for emergency situations. The acid gas respirator is also used during elementary neutralization procedures in the facility.

F-3a(4) Water For Fire Control:

Water for firefighting purposes is provided by the City of Chicago fire main system. The nearest fire hydrant to the facility is located approximately 80 feet away.

Water pressure for fire control has been evaluated by the Arkwright Mutual Insurance Company. A copy of the test information is attached. Results of the study show adequate water pressure is available.

F-3b Aisle Space Requirement:

The chemicals are stored on metal storage shelves in the various rooms with the exception of the drum storage room. The metal storage shelves are located along the walls of the facility allowing approximately six feet access space between shelf units. The drums in the drum storage room are located along the wall providing adequate aisle space.

Aisle space in the facility is shown on the facility diagram on page 27b.

F-4 Preventive Procedures, Structures, and Equipment:

F-4a Unloading Operations:

Chemicals received at the facility are in small containers, normally one gallon or less. No special equipment is required for loading, unloading, or handling.

Flammable liquids are consolidated in 55-gallon drums for storage in the drum storage room. Drums are handled using a drum dolly.

F-4b Runoff:

The flammable, toxic, reactive and corrosives storage rooms inside the facility are diked with a three-inch concrete curb to prevent runoff to other parts of the facility and to the outside of building. (See drawing for secondary containment on p. 23a).

F-4c Water Supplies:

Spills or leaks occurring inside the facility would be held inside containment areas. Scintillation vials stored on the exterior pad are in 55 gallon steel drums with plastic liner and vermiculite in them as secondary containment. Containment of materials would prevent contamination of water supplies that may be present in the area.

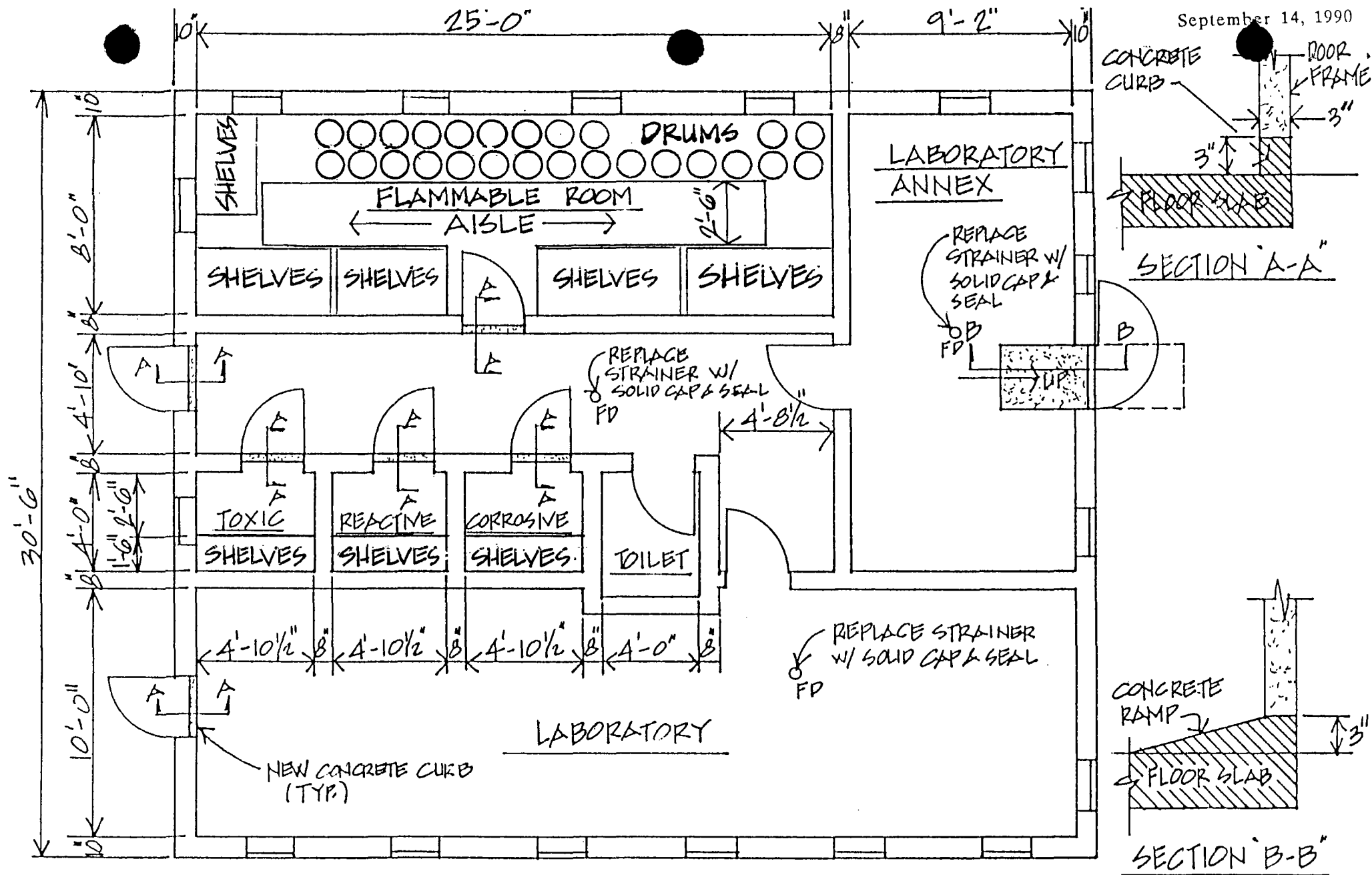
F-4d Equipment and Power Failure:

No power equipment is required for handling chemicals in the facility. Power outage at the facility should have no detrimental effect on operation.

F-4e Personnel Protection Equipment:

Personnel handling chemicals in the facility during screening and segregating wear laboratory coats, eye protection, and rubber gloves. A NIOSH-approved respirator protection system suitable for organic vapors and acid gases is available for emergency situations. The acid gas respirator is also used during elementary neutralization procedures in the facility.

September 14, 1990



FLOOR PLAN

SCALE:  $\frac{3}{16}'' = 1'-0''$

LAB SERVICE BLDG.

EPA CURBS

SD-1

PROJECT NO.

892049

F-5a Cautions To Prevent Ignition or Reaction of Ignitable or Reactive Waste

The facility is designated a no smoking area with signs posted on each entrance to the building. Electrical fixtures located in storage rooms are explosion-proof, fluorescent or incandescent. The only open flame from the open cup flash point testing device is located in the general screening portion of the laboratory, and precautions are taken to utilize equipment only when small amounts of chemical are present in the room.

F-5b General Precautions For Handling Ignitable or Reactive Waste and Mixing of Incompatible Waste:

The facility has been divided into segregated storage rooms with diking to prevent inter-mixing of spilled material. Chemicals are segregated into toxics, flammables, reactives, and corrosives. As chemicals are brought into the facility, they are tested and segregated into proper storage location.

F-5c Management of Ignitable or Reactive Wastes in Containers:

Wastes are stored a minimum of 50 feet from the nearest The University of Chicago property line.

F-5d Management of Incompatible Wastes In Containers:

Wastes received at the facility go through a general screening process to determine compatibility with other chemicals. After screening is completed, waste is placed in the appropriate storage room in the facility. Storage rooms are isolated from each other by walls and berms.

Wastes enter the facility in the original container. They are not placed in containers that previously contained other waste, with the exception of the flammable liquids which are bulked into 55 gallon drums. Flammable liquids are screened the same as all other waste entering the facility and incompatibles are not mixed.

F-5e Management of Ignitable or Reactive Waste in Tanks:

The University of Chicago facilities do not store hazardous waste in tanks. This paragraph does not apply.

F-5f Management of Incompatible Wastes in Tank Systems:

The University of Chicago facilities do not store hazardous wastes in tank systems. This paragraph does not apply.

F-5g Management of Ignitable or Reactive Wastes Placed in Waste Piles:

University of Chicago facilities do not store hazardous waste in waste piles. This paragraph does not apply.

F-5h Management of Incompatible Waste Placed in Waste Piles:

University of Chicago facilities do not store hazardous waste in waste piles. This paragraph does not apply.

F-5i Management of Ignitable or Reactive Waste Placed in Surface Impoundments:

University of Chicago facilities do not store hazardous waste in surface impoundments. This paragraph does not apply.

F-5j Management of Incompatible Waste Placed in Surface Impoundments:

University of Chicago facilities do not store hazardous waste in surface impoundments. This paragraph does not apply.

F-5k Management of Ignitable or Reactive Waste Placed in Landfills:

University of Chicago facilities do not operate landfills. This paragraph does not apply.

F-5l Management of Incompatible Waste Placed in Landfills:

University of Chicago facilities do not operate landfills. This paragraph does not apply.

F-5m Management of Ignitable or Reactive Waste Placed in Land Treatment Units:

University of Chicago facilities do not dispose of hazardous waste by using land treatment. This paragraph does not apply.

F-5n Management of Incompatible Waste Placed in Land Treatment Units:

University of Chicago facilities do not dispose of hazardous waste by using land treatment. This paragraph does not apply.

G. CONTINGENCY PLAN

This section presents the contingency plan currently employed by The University of Chicago to minimize hazards to human health or the environment from fires, explosions, or any sudden releases of hazardous waste to the air or soil. A copy of the contingency plan is attached to the application. The plan is maintained at the operator's desk in the facility.

G-1 General Information:

General information is provided concerning the hazardous waste storage facility:

Facility Name -	Laboratory Services Building
Location -	The University of Chicago, Chicago Illinois
Operator -	The University of Chicago

Laboratory Services Building is a receiving point for waste chemicals from The University of Chicago Hospitals and teaching facilities. Site plans are shown in the attached "Contingency Plan". Chemicals are received at the facility, sorted and segregated, and stored until a disposal contractor comes on-site to lab pack them. Chemicals are normally received in original containers; usually glass or plastic bottles ranging in size from a few ounces to approximately one gallon. Flammable chemicals may be consolidated into 55-gallon drums for ease of storage and disposal.

G-2 Emergency Coordinators:

Primary Coordinator: Dr. Sam Wang  
6041 Blackstone Avenue or  
5737 S. Ellis Avenue  
The University of Chicago  
Chicago, Illinois  
Office Phone: 753-0829 or 702-7051  
Home Phone: 429-9129

Alternate Coordinator: Roy Mackal  
Young Building, Room 307  
The University of Chicago  
Chicago, Illinois  
Office Phone: 702-3416  
Home Phone: 238-6516

Duties of Emergency Coordinators:

- 1) Respond to an emergency call or notification.
- 2) Identify and assess the emergency situation and take immediate action, if appropriate.
- 3) Notify emergency response teams, including city Fire Department, Police Department, and medical facilities, etc.
- 4) Work closely with emergency response teams.
- 5) Take post-emergency measures to prevent recurrence of the incident.

G-3 Implementation:

Any spill or incident occurring at Laboratory Services Building is reported to (1) Campus Security Office, (2) Emergency Coordinator and (3) city fire department.

The contingency plan would be implemented whenever a spill occurred, large enough to meet reportable quantities, as provided by EPA regulations under CERCLA/SARA. The quantity would be determined by the emergency coordinator.



G-4 Emergency Response Procedures:

G-4a Notification:

Personnel at Laboratory Services Building will be initially notified by voice. The facility is small enough that a voice amplification system is not required. The facility operator or anyone identifying a problem will: 1) notify Campus Security by dialing 123 from a campus phone or 702-8181 from a non-campus phone; 2) notify the Emergency Coordinator who will respond and assess the problem; and 3) local law enforcement, fire department, and medical facilities will be notified if off-campus personnel or property are endangered.

G-4b Identification of Hazardous Materials:

There are several methods for identifying hazardous materials involved in the incident. Initially, the Emergency Coordinator will try to identify markings on containers by item description and area of the facility it's stored in. The Emergency Coordinator will compare inventory logs to storage locations to determine chemicals that may be involved.

In the event materials cannot be identified from item description or storage location, a sample will be submitted to a contract laboratory for analysis of hazard characteristics, using EPA methodology.

G-4c Assessment:

Once the material has been identified, hazards can be assessed by referring to several information sources. Among these are DOT P5800.3 Emergency Response Guidebook, or CHEMTREC. Once hazards are known, an evacuation can be calculated and notifications made by Campus Security. Notifications that may be required include:

Local Law Enforcement Agencies (911)  
Local Firefighting Agencies (911)  
EPA National Response Center (800) 424-8802  
Illinois Emergency Services and Disaster Agency  
(800) 782-7860  
IEPA Emergency Response Unit (217) 782-3637  
IEPA Division of Land Pollution Control, Permit  
Section, RCRA Unit (217) 782-6762

G-4d Control Procedures:

City fire department will be notified to respond immediately to any fire, explosion or release of hazardous materials. The fire department will contain and control any fire involved at the facility with the assistance of the Emergency Coordinator. Fire Chief is responsible for controlling a fire/explosion situation, but Emergency Coordinator has overall responsibility for the incident.

G-4e Prevention of Reoccurrence of Spread of Fires, Explosions or Releases:

City fire department will use its resources in normal firefighting operations to control spread of fire and prevent explosions. Spill releases will be controlled through use of absorbents as described in the contingency plan.

A follow-up, post-incident review will be performed by the Emergency Coordinator to study the incident and determine methods to prevent reoccurrence. The Coordinator will be assisted by all personnel involved in the response, as needed. The Contingency Plan will be modified, if required.

G-7 Evacuation Plan:

Evacuation of the facility will be initiated by voice signal to personnel inside. Evacuation from the area will be made by Dorchester Avenue north to Midway Plaisance. Alternate evacuation route would be to go south on Dorchester Avenue. Emergency response equipment is depicted on the diagram on page 27a.

G-8 Required Reports:

A follow-up report detailing the incident, emergency response, clean-up, and actions taken to prevent reoccurrence will be prepared and submitted to the Illinois DLPC Permit Section within 15 days of occurrence. All records concerning the incident and report will be maintained by the facility operator until three years after final closure of the Laboratory Service Building. Reports are maintained at the facility operator's office.

Details of the incident will be maintained in the facility operation log, maintained by the operator. Following conclusion of the incident, the Facility Operator will notify the DLPC Permit Section, and the Illinois ESDA that clean-up has been completed.

The report to Illinois DLPC will include:

- o Name, address and phone number of owner or operator.
- o Name, address and phone number at the facility.
- o Date, time and type of incident.
- o Name and quantity of material.
- o Extent of injuries.
- o Assessment of hazards to human health or environment.
- o Estimated quantity and disposition of recovered material.

## H. PERSONNEL TRAINING

Information contained in this section outlines training the facility operator has received.

### H-1 Outline of the Training Program:

The University of Chicago has one individual assigned to operate the Laboratory Service Building. Introduction to facility operation was obtained by working with a previous operator for approximately three years prior to assuming responsibility.

Following provides professional background for the facility operator, Dr. Sam Wang.

Education Background:	BS Degree, Chemical Engineering - 1963 MS Degree, Physical Chemistry - 1969 PhD Degree, Physical Chemistry - 1976
Position at University:	Manager of Physical Chemical Laboratories, 1979-Present
Short Courses Attended:	US EPA 10th Annual Research Symposium, 1984 General Electric PCB Regulation Seminar, 1985 IEPA and Illinois Department of Energy Hazardous Waste Seminar, 1986 National Safety Council Hazardous Waste Management Seminar, 1988 Hazardous Waste Expo 88, 1988

#### H-1a Job Title/Job Description:

One employee is directly responsible for handling hazardous waste. Dr. Wang is Manager of Laboratory Services Building's hazardous waste operation.

Duties involve identification, segregation, storage, and management of hazardous waste at the facility. The operator receives chemicals from University laboratories and the medical center on campus. He identifies and segregates chemicals according to hazardous properties to insure non-compatibles are not stored together. As chemicals accumulate in the facility, he is responsible for weekly inspections and any operations at the facility.

He is responsible for having a waste disposal contractor come on-site, lab pack all chemical bottles, remove the drum waste, and properly dispose of chemicals.

Additional duties for this position involve acting as emergency coordinator during spill, fire, explosion or other incident. The facility manager also provides guidance to agencies on campus with regard to proper handling and turn-in of hazardous waste.

#### H-1b Training Content, Frequency and Techniques:

New personnel will receive routine on-the-job training from an experienced operator. Prior to assuming responsibility, he or she should have all the knowledge and skill to successfully perform the job duties described in H-1a. The facility operator is also required to attend training seminars and classes whenever available.

The training program will provide training for employees on specific facility operations and potential hazards involved. The training will acquaint personnel with specific operations involving:

- o Waste transport/handling.
- o Receipt at facility.
- o Storage location/segregation.
- o Material Safety Data Sheet usage.
- o Proper paperwork requirements.
- o Contract disposal methods.
- o Emergency operations.
- o Chemical handling safety requirements.

The training requirements for the Facility Operator will include the requirements of OSHA 1910.120, Hazardous Waste Worker Training.

Training for facility personnel will be updated annually. The training manual includes the Part B permit, contingency plan, and any other documents maintained at the facility.

#### H-1c Training Director:

Training director will implement the on-the-job training to a new operator. The Facility Operator is the training director.

#### H-1d Relevance of Training to Job Position:

Training courses and seminars attended by the facility manager deal directly with waste management practices and techniques. In addition, Dr. Wang's background in chemical science provides a basis for identifying and understanding chemical hazards.

#### H-1e Training For Emergency Response:

On-the-job training will include the emergency response training to prepare for any unexpected release, fire, or explosion. The operator should be familiar with the facility Contingency Plan and the procedures to use, inspect, and repair all the emergency equipment.

H-2 Implementation of Training Program:

Dr. Wang received approximately three years of on-the-job training with the previous hazardous waste manager. Similar on-the-job training will be received by any new personnel hired to work in or operate the facility.

## CLOSURE PLAN

Plan - July 5, 1983

Revision - June 20, 1988

Revision - November 8, 1988

Hazardous Waste Facility Closure PlanThe University of Chicago

U.S. EPA Interim Permit No. I.D. #ILT 180019838

IEPA Permit No. 0316000848

Responsible Coordinator: Norman H. Nachtrieb  
University Laboratory Safety Officer

Office: Searle Chemistry Laboratory, Room 117  
5735 S. Ellis Avenue, Chicago, IL. 60637  
Tel. (312) 962-7094

Home: 8400 West 131st Street, Box 61  
Palos Park, IL. 60464  
Tel. (312) 448-5010

The University of Chicago currently maintains two sites for the interim storage of hazardous chemical wastes, pending packaging in lab-pack form for disposal by commercial incineration or landfilling under the manifest system. It employs S.E.T. Liquid Systems, Inc. (350 Sumac Road, Wheeling, IL. 60090, Tel (312) 537-9221) to lab-pack wastes at these sites and to transport them under manifest to S.C.A. Chemical Services, Inc. (11700 S. Stony Island Ave., Chicago, IL. 60617, Tel. (312) 646-5700) for incineration or to Chemical Waste Management of Alabama (P.O. Box 55, Emelle, Alabama 35459) for landfilling.

The sites are:

- 1.) Room 16, George Herbert Jones Chemistry Laboratory, (5747 Ellis Avenue, Chicago, IL. 60637)
- and
- 2.) Franklin McLean Memorial Research Institute Blockhouse, (950 E. 59th Street, Chicago, IL. 60637)



Figure 1 shows the location of these storage sites, designated I and II, respectively, on a map of The University of Chicago campus.

I. Jones 16 is a basement room situated beneath the concrete loading dock of the George Herbert Jones Chemistry laboratory at the connection between that building and the Kent Chemical Laboratory. It is separated from the basement corridors of Jones and Kent by two sets of steel doors. Figure 2 shows the relationship between the waste chemical storage room (Jones 16) and these corridors, as well as the loading dock elevator and liquid nitrogen dispensing station. Jones 16 is equipped with two ceiling lights that are enclosed in vapor-proof heavy glass shields, and the switch that controls them is outside the room. A smoke detector and a heat detector in the ceiling of Jones 16 are connected to a building alarm and to the switchboard of the University Security Office. A security lock on the door to Jones 16 also actuates a local alarm and alerts the University Security Office unless it is de-activated by a key switch in a panel in the corridor. A CO<sub>2</sub> fire extinguisher is located inside Jones 16, together with absorbant spill pillows for the clean-up of minor spills, and 2 CO<sub>2</sub> fire extinguishers are nearby in the basement corridor of Jones.

Hazardous wastes in closed containers (bottles) are stored in six metal cabinets in Jones 16, and are segregated according to compatibility (viz., flammable, moisture-reactive, corrosive, and toxic wastes are separated in different cabinets). The quantity of hazardous waste in storage varies from essentially zero to 200 gallons over the storage period, which does not exceed 90 days.

### Closure Plans for Jones 16

When Jones 16 is no longer used for the interim storage of hazardous chemical wastes, its conversion to another use will be a simple, uncomplicated procedure. No treatment of wastes occurs in Jones 16 and no clean-up of contamination is involved. Closure will consist merely in the removal of the six steel storage cabinets, and the cost will not exceed \$100.

II. The Franklin McLean Research Institute Blockhouse, shown in Figure 3, is a limestone building located in the courtyard of Billings Hospital, accessible through an arch between the Goldblatt Hospital and the Franklin McLean Institute at 5840 S. Ellis Avenue. It is a one-story structure, 33 feet by 46 feet in area, equipped with a water sprinkler system and its alarm system is connected to the University Security Office. The building has a locked steel door at its southeast corner and an 8-foot shutter door on its western side. Carbon dioxide fire extinguishers are inside the building at each door.

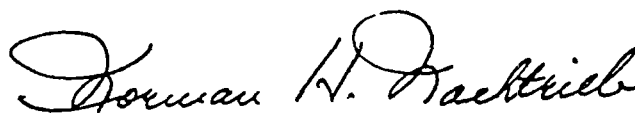
Hazardous chemical waste is stored in six fire-proof cabinets, pending packaging into lab-packs for manifested disposal by a commercial incinerator or by landfilling. The storage cabinets occupy the eastern one-third of the building area. Wastes are segregated in different cabinets according to the nature of their hazard (viz., flammable, moisture-reactive, corrosive, or toxic). The quantity of waste varies from essentially zero to about 200 gallons over the interim storage period, which does not exceed 90 days. This waste originates in the Medical Center and in research laboratories of the Division of the Biological Sciences.

A masonry interior wall isolates a small area at the western side of the building for the storage and dispensing of ethyl alcohol for the Medical Center. The middle area of the building has a raised concrete floor that provides shielding from radiation produced by an accelerator at basement level beneath the courtyard. Low-level radioactive waste is stored in steel drums on the raised floor area, pending manifested disposal (currently in Washington State) or decay to negligible levels of activity.

Closure Plans for Chemical Waste Storage in the FMI Blockhouse

No treatment of chemical waste is carried out in the FMI Blockhouse, and its closure for the interim storage of hazardous chemical waste will be a simple procedure involving merely the removal of the six storage cabinets. No decontamination will be necessary, and the cost will not exceed \$100.

July 5, 1983



Norman H. Nachtrieb, University  
Laboratory Safety Officer

# FIGURE 1

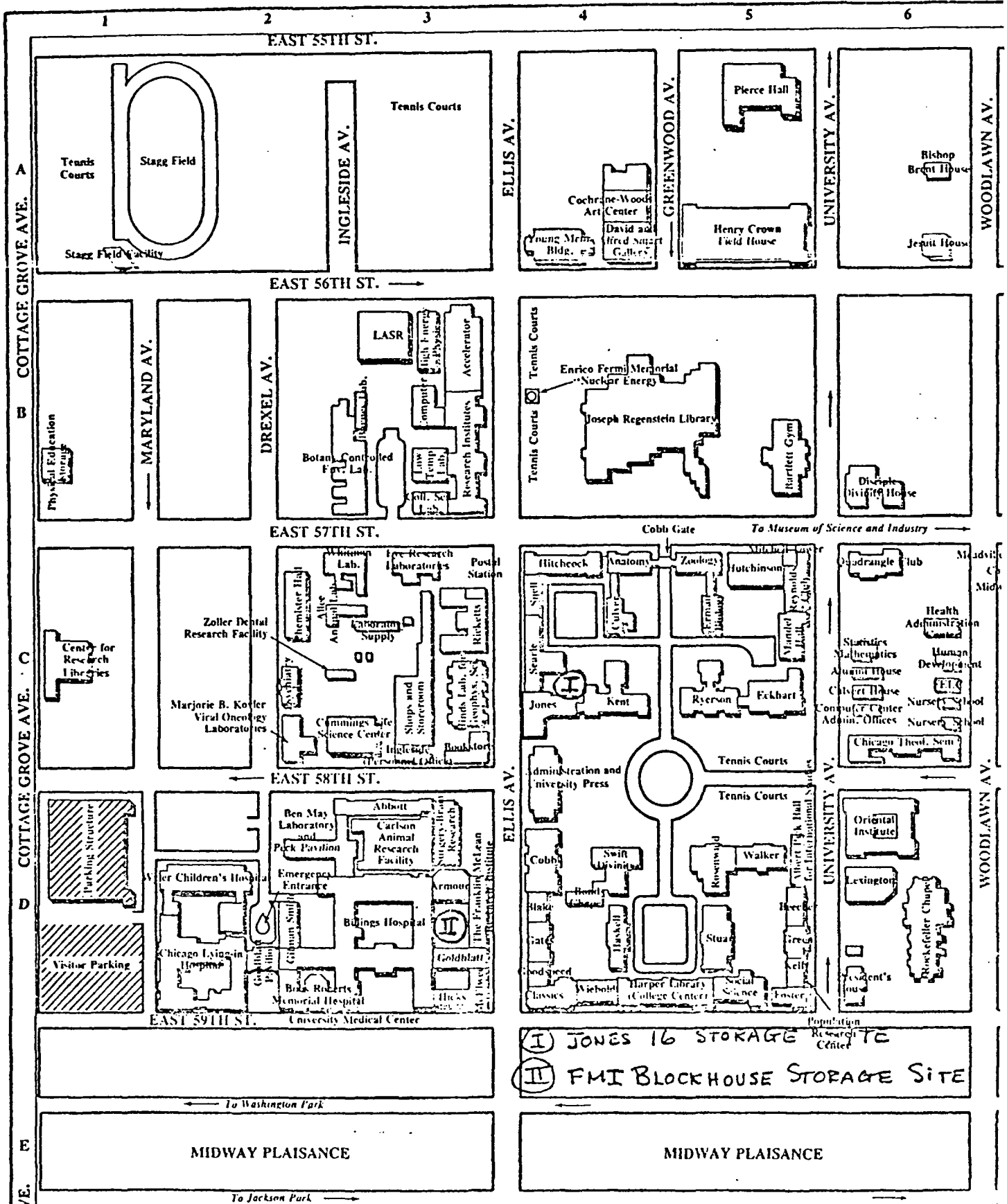
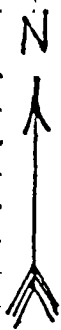
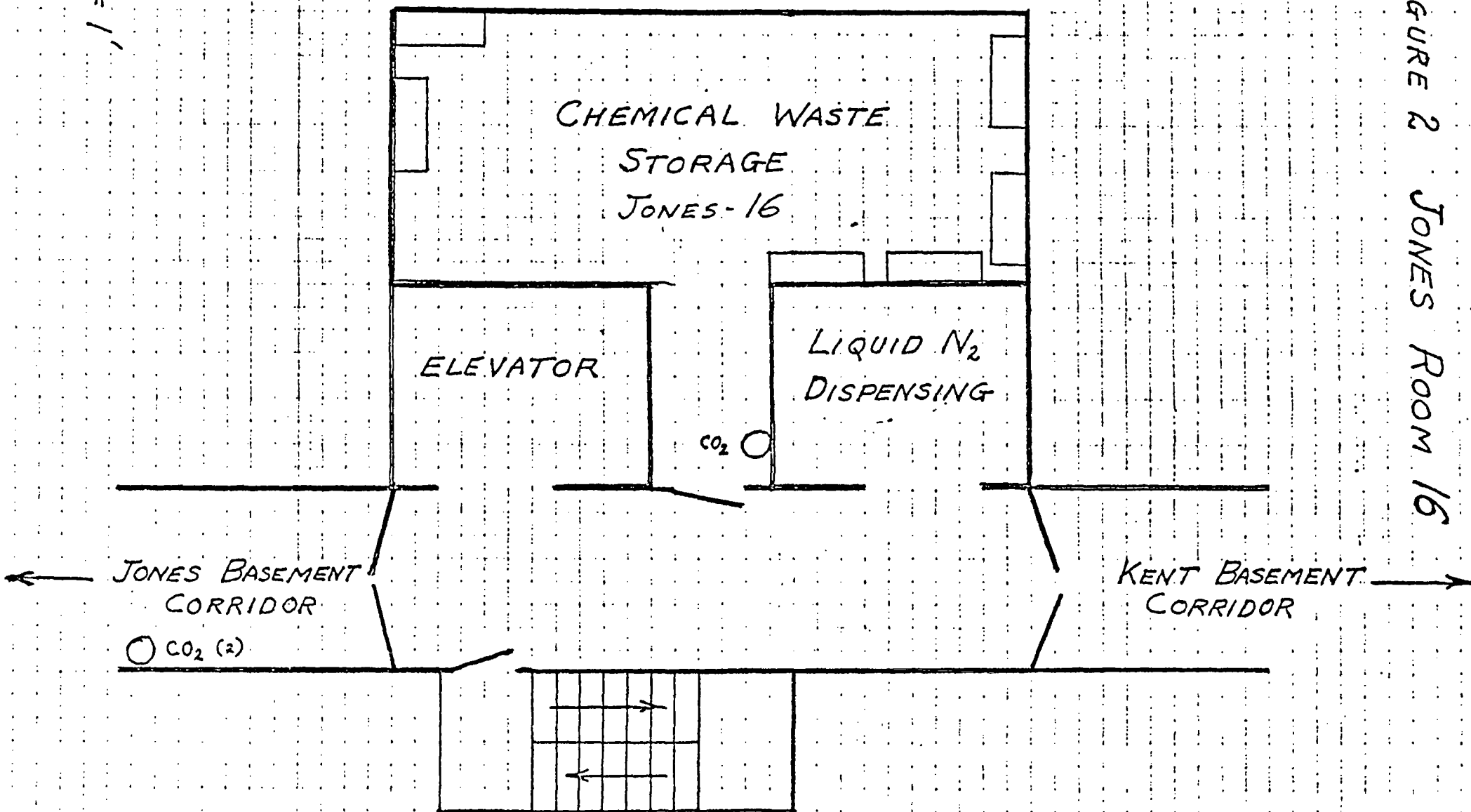


FIGURE 2 JONES ROOM 16



SCALE:  $\frac{1}{8}$ " = 1'



● FIGURE 3

GOLDBLATT HOSPITAL

COURT YARD

FMI BLOCKHOUSE

ALCOHOL  
STORAGE

LOW-LEVEL  
RADIOACTIVE WASTE  
STORAGE

CHEMICAL WASTE  
STORAGE

FRANKLIN McLEAN  
RESEARCH INSTITUTE

GATE

SCALE:  $\frac{1}{16}'' = 1'$

59<sup>TH</sup> ST.

ELLIS AVE

CLOSURE PLAN

Name of Site: Room 16, George Herbert Jones Laboratory  
Chemistry Department  
University of Chicago

USEPA I.D. No.: ILD 005421136

IEPA Site No.: 0316410001

Our facility, University of Chicago, is located in Hyde Park, on the south side of the city of Chicago (See South Chicago Map, Fig. 1). Its approximate boundary extends from E. 55th Street(North) to E. 61st Street(South), and from Cottage Grove Avenue(West) to Blackstone Avenue(East). The University is an educational institution, operating a college, graduate departments, professional schools, libraries, a press, and a number of educational and research departments. The University has approximately 8000 students at various academic levels, and more than 1000 faculty members and supporting staff.

Waste chemicals are generated, within the facility, from several hundred laboratories involved in research and instruction. The facility has a Standard Industrial Code (SIC) of 8221 under Educational Services. At the present time the facility maintains three (3) waste management units. Fig. 2 shows the University Map, in which the location of each unit is indicated. Detailed description of each unit is given as follows:

- (1) Room 16 in George Herbert Jones Laboratory of Chemistry Department (5747 S. Ellis Avenue, See Fig. 2 for location). This is the unit for which the closure plan is being applied at this time. The unit is a room situated beneath the concrete loading dock of the Jones Laboratory. The room is an enclosed area of 36 ft. by 16 ft. with concrete walls, floor, and raised doorsill. It is separated from the basement corridors of Jones Laboratory and Kent Laboratory by two sets of steel doors. Fig. 3 shows the relationship between Room 16 and these corridors, as well as the loading dock

elevator and liquid nitrogen dispensing station. The room was first used around 1980. Most of the chemicals stored there were originated from Chemistry Department itself. Other sources included Biology Department, Zoology Department, and Anatomy Department, etc.. The room was used exclusively for storage of waste chemicals (Process Code S01). They were stored in six metal cabinets. The quantity of chemicals in storage varied from zero to 200 gallons over the storage period, which did not exceed 90 days, pending packaging into lab-packs for manifested disposal by a commercial incinerator or by landfilling. The chemicals were segregated according to their compatibility (viz., flammable, moisture-sensitive, corrosive, and toxic wastes were separated in different cabinets). They were in containers, mostly glass bottles, of equal to or less than one gallon capacity. At this time there are no hazardous wastes located in the unit and none will be placed there subsequently. For a list of chemicals stored there, please see Table 1.

- (2) The Franklin McLean Research Institute Blockhouse (950 E. 59th Street, See Fig. 2 for location). This is a limestone building located in the courtyard of Billing Hospital, accessible through an arch between the Goldblatt Hospital and the Franklin McLean Institute (See Fig. 4). It is a one-story structure, 33 ft. by 46 ft. in area. All the waste originates in the Medical Center and in research laboratories of the Division of the Biological Sciences. The chemicals in bottles are stored in six fire-proof cabinets (Process Code S01-200 gallons), pending packaging into lab-packs for commercial disposal. The wastes are segregated in different cabinets according to the nature of their hazard. A list of stored chemicals is shown in Table 1. Since the completion of the Laboratory Service Building (See item (3)) about two year ago, all the chemicals have been transferred to the Laboratory Service Building for lab-packing. From May of 1988 the Blockhouse is only served as an accumulation area. Chemicals received here are taken



immediately to the Laboratory Service Building (within a couple of days) for consolidated management.

- (3) The Laboratory Service Building (6041 S. Blackstone Avenue, See Fig. 2 for location). The building was completed in 1986, which is a one-story masonry structure without attachment to any other buildings. It is remotely located on the far southeast side of the university campus. The direct access route by vehicles to the building is from E. 61st Street or Dorchester Avenue, then to Blackstone Avenue (See Fig. 5). The building occupies an area of 31 ft. by 38 ft. with finished concrete floor. To the east side of the building there is a fenced yard with a concrete patio. Inside the building it is subdivided into several areas (rooms), including a laboratory, to store chemicals of the same compatibility (Flammable, Reactive, Toxic, and Corrosive) and each room is labeled as such. The floor plan and designation of each area is shown in Fig. 6. This building was designed to consolidate and centralize all the waste management activities on campus. The activities involved are S01-2000 liters and T04-60 gallons(per year), in compliance with the Revised Part A Permit issued to the University in 1984. The S01 process does not exceed 90 days before commercial manifested disposal of the waste. The T04 process at the present time is, and has been, confined to elementary neutralization of acids and bases. A list of stored chemicals is shown in Table 1.

As mentioned earlier, this submitted closure plan only applies to Room 16 in George Herbert Jones Laboratory. A temporary accumulation area (Room 401 in Jones Laboratory) is now in use to receive waste chemicals mostly originated from Chemistry Department. The Franklin McLean Research Institute Blockhouse will continue to be used as an accumulation area and the Laboratory Service Building will be the center of our waste management activity.

When the closure is approved, its conversion to another use (no treatment, storage or disposal of chemicals) will be a simple, uncomplicated procedure. No treatment of chemicals occurs in Room 16 and no clean-up of contamination is involved. The six steel storage

cabinets formally located in the unit that contained bottled hazardous wastes from time to time were found to be clean and uncontaminated. Closure of the unit will be effectuated within 30 days following approval. We are also aware of the fact that the closure must be certified by both the owner/operator and an independent registered professional engineer.

TABLE 1

The waste chemicals, in different varieties and usually in small quantities, originate from numerous research and instruction laboratories on campus. A large fraction of those chemicals are unused portion of chemicals in bottles of approximately one pound in capacity. Therefore only those important and commonly encountered chemicals can be summarized below, which applies to all the three facility units mentioned earlier.

D001 --- Flammable Wastes (Organic Solvents)

U019 Benzene  
 U154 Methanol  
 U239 Xylene  
 U220 Toluene  
 U002 Acetone  
 U112 Ethyl Acetate  
 U117 Ethyl Ether  
 U122 Formaldehyde  
 U196 Pyridine  
 U031 n-Butyl Alcohol  
 Saturated Hydrocarbons  
 Pump Oil

D002 --- Corrosive Wastes

Sulfuric Acid      Nitric Acid  
 Hydrochloric Acid   Sodium Hydroxide  
 Potassium Hydroxide

D003 --- Reactive Wastes

U006 Acetyl Chloride   Sodium Metal  
 Potassium Metal      Phosphorous  
 Phosphorous Pentoxide

D004 --- Arsenic Salts

D005 --- Barium Salts

D006 --- Cadmium Salts

D007 --- Chromium Salts

D008 --- Lead Salts

D009 --- Mercuric Salts

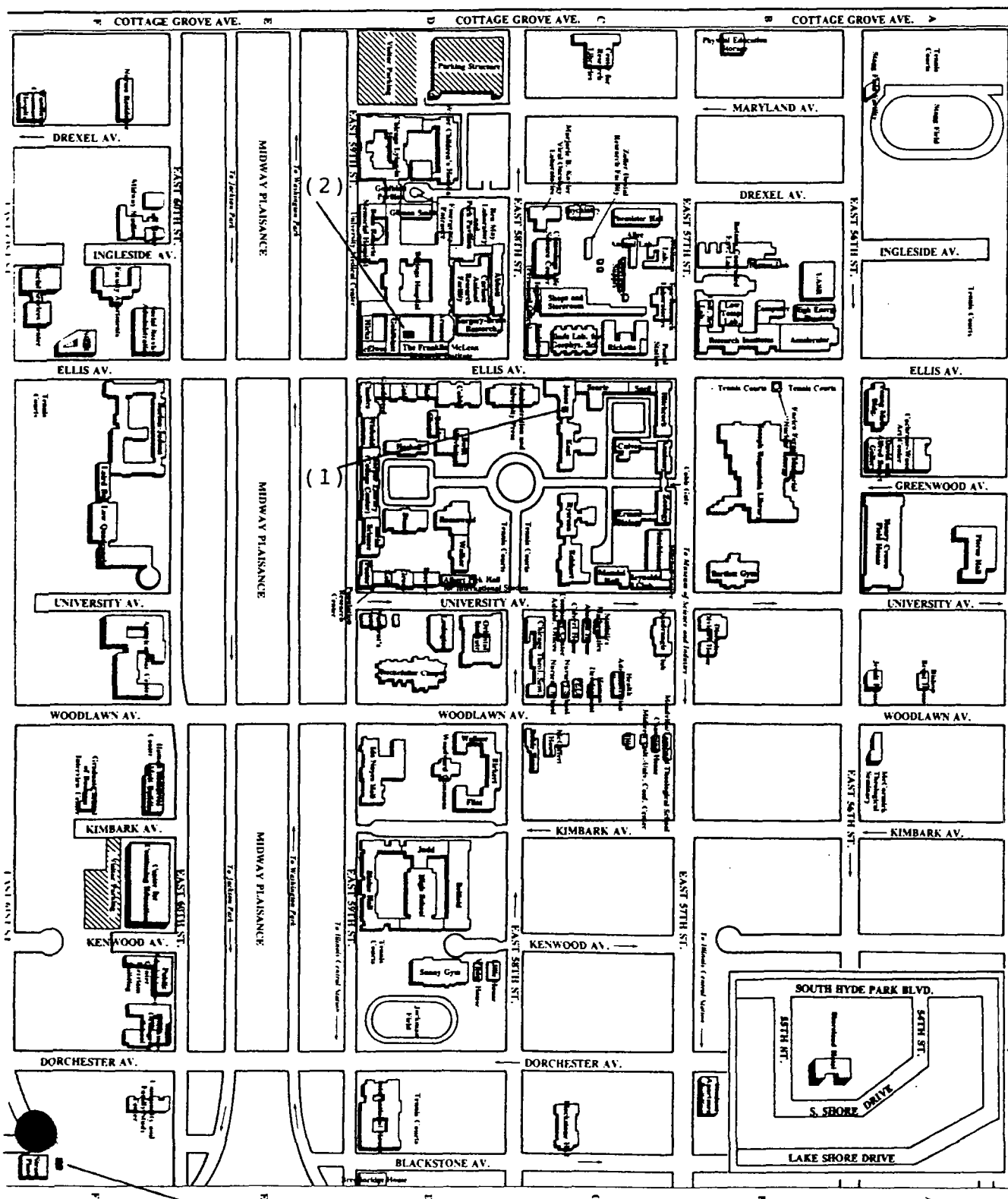
Fig. 1

South Chicago  
Map and Univer-  
sity of Chicago  
Location

University  
of Chicago



Fig. 2 University of Chicago Map  
 (1) Room 16 in George Herbert Jones Laboratory  
 (2) Franklin McLean Research Institute Blockhouse  
 (3) Laboratory Service Building



(3)

Fig. 3

JONES Room 16

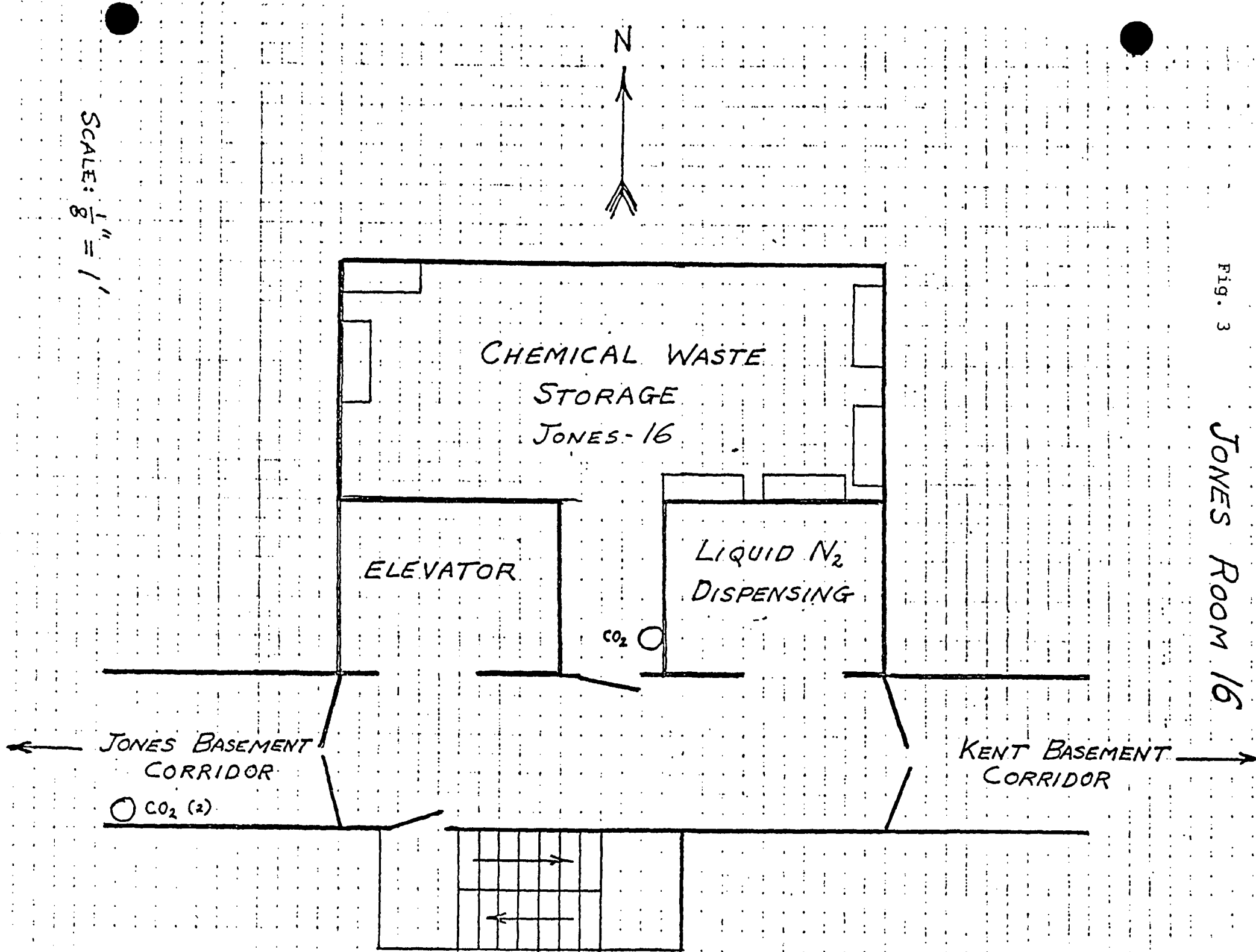


Fig. 4  
FMI Blockhouse

GOLDBLATT HOSPITAL

COURTYARD

FMI BLOCKHOUSE

ALCOHOL  
STORAGE

O<sub>2</sub>

LOW-LEVEL  
RADIOACTIVE WASTE  
STORAGE

CHEMICAL WASTE  
STORAGE

O<sub>2</sub>

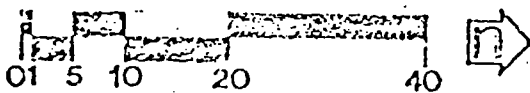
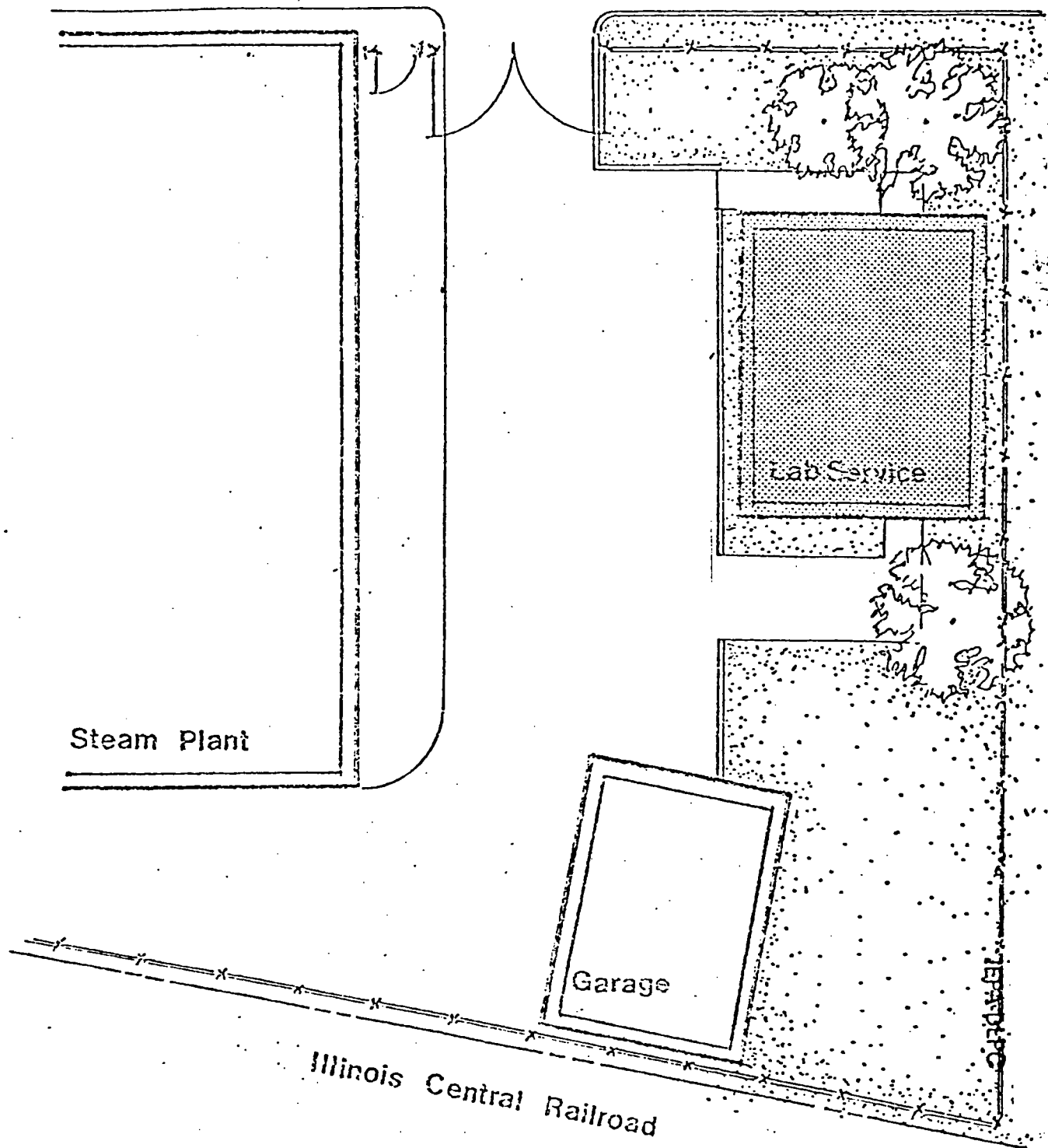
FRANKLIN McLEAN  
RESEARCH INSTITUTE

GATE

SCALE:  $\frac{1}{16}'' = 1'$

Fig. 5 Laboratory Service Building

S. Blackstone Ave.



Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRESIDENT  
PHYSICAL PLANNING



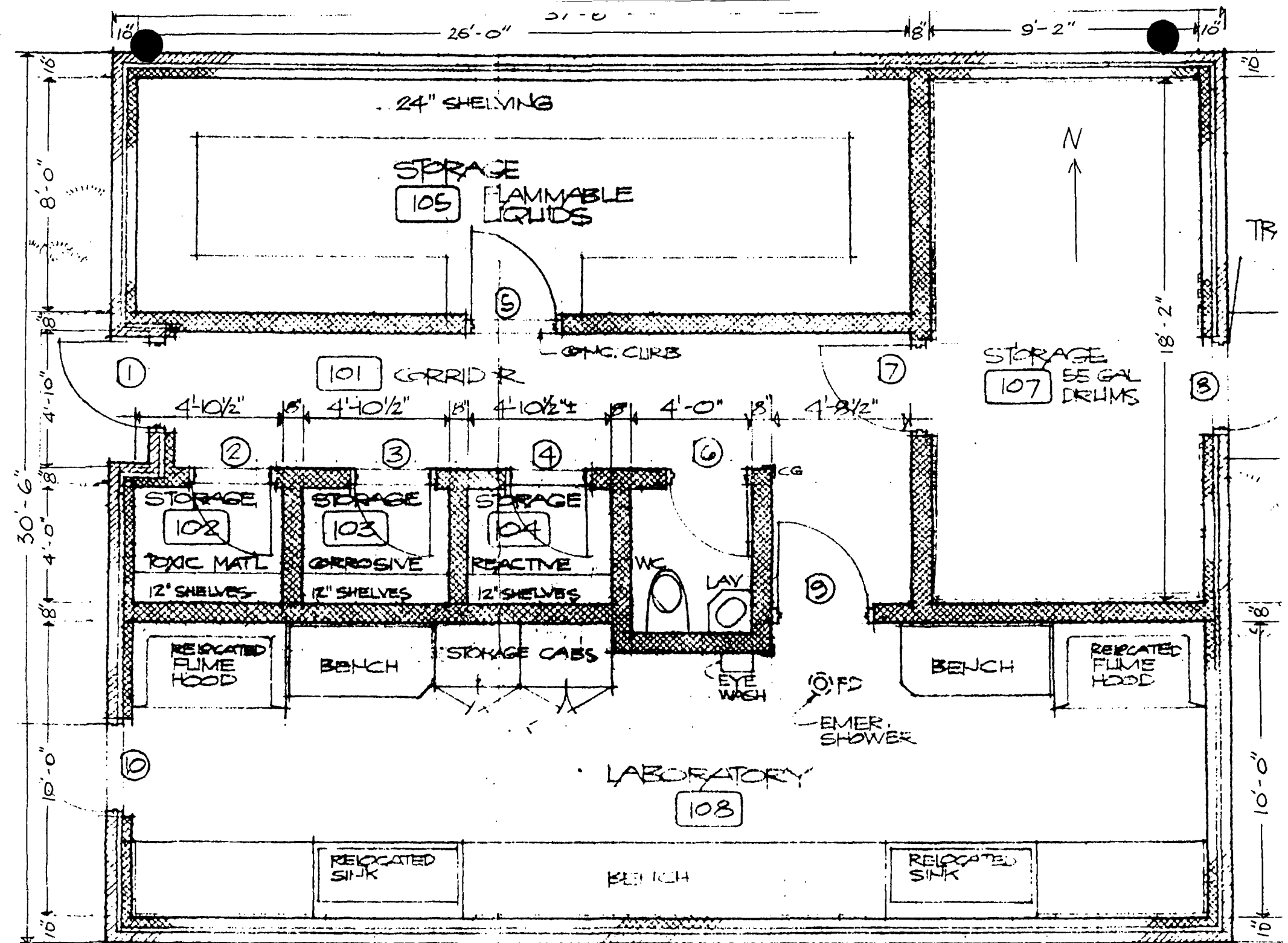


Fig. 6 Floor Plan of Laboratory Service Building

This statement is to be completed and attached to each of the 4 copies of the closure plan. At least one of the copies must contain original signatures.

Closure Plan  
Certification Statement

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD 005421136  
USEPA ID Number

University of Chicago  
Facility Name

*Sam H. Wang*  
Signature of Owner/Operator

Sam H. Wang  
Laboratory Safety Officer  
Name and Title

June 20, 1988  
Date

Revised:  
September 14, 1990

## CLOSURE AND POSTCLOSURE PLAN

Name of Site: Laboratory Services Building  
The University of Chicago  
US EPA I.D. No. ILD005421136  
IEPA Permit No. 0316410001

### CLOSURE AND POSTCLOSURE REQUIREMENTS

This plan identifies steps necessary to partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life.

#### 1. Description of Facility/Waste Management Units to be Closed:

The University of Chicago is located in Hyde Park on the South side of the City of Chicago. The approximate boundary extends from East 55th Street to East 61st Street and from Cottage Grove Avenue to South Lakeshore Drive. The University is an educational institution, operating a college, graduate department, professional schools, libraries, a press, and a number of education and research departments and the affiliated University of Chicago Hospitals. The University has approximately 9,000 students at various academic levels, and approximately 1,100 faculty members and 8,000 supporting staff.

Waste chemicals are generated within the facility from several hundred laboratories involved in research and instruction. The facility maintains four solid waste management units.

The Laboratory Service Building is the primary hazardous waste processing and storage facility on the University. It is a one-story masonry structure constructed in 1986, located on the far southeast side of the University campus.

1a Map of Facility:

A map showing the facility and a distance of 1,000 feet around it is attached. The map includes contours, the map date, surface waters, surrounding land use, and map orientation.

1b Drawings of Unit to be Closed:

Drawings of the unit to be closed are attached.

1c Storage Area Pavement Description

Chemicals received at the facility are in small containers, normally one gallon or less. Flammable liquids are consolidated in 55-gallon drums for storage in the flammable storage room.

The flammable, toxic, reactive and corrosive storage rooms inside the facility are diked with a three-inch concrete curb to prevent any spillage runoff to other parts of the facility.

2. Closure Plans:

The University of Chicago will maintain a copy of the closure plan and all revisions to the plan until Certification of Closure Completeness has been submitted and accepted by the director. The University of Chicago representative will submit the closure plan to Illinois EPA at least 180 days prior to date the storage facility expects to begin final closure. Any modifications to existing equipment, structures, instruments, or procedures related to management of the facility will require the University of Chicago to revise the closure plan accordingly.

2a. Closure Performance Standard:

If there is evidence of spills or leaks at time of closure, samples will be taken and analyzed to determine extent of contamination in buildings previously used to store hazardous waste, in soil surrounding the building, and, if necessary, in groundwater. Contaminated soil will be excavated, removed and disposed at a proper disposal facility.

Contaminated building surfaces will be decontaminated as described in this plan. Contaminated groundwater attributable to handling practices of hazardous waste at this facility will be treated as described in this plan, so that contamination resulting from the above handling practices is below local, state, and/or federal limits specific for that containment. Should soil be removed during decontamination the entire site will be regraded subsequent to closure to reduce erosion. The University of Chicago will submit certification by an independent registered professional engineer that the facility has been closed in accordance with specifications in the approved closure plan upon completion of closure.

2b. Partial Closure Activities:

No partial closure is anticipated.

3. Maximum Waste Inventory/List of Hazardous Waste:

Maximum amount of hazardous waste stored in the facility at any one time is estimated to be approximately 4,600 gallons. Type of waste will be primarily ignitable with small quantities of corrosive, reactive and toxic. Types of waste varies since waste received at the facility comes from a variety of research laboratories. It is not possible at this time to provide a complete inventory of every waste type that may be stored at the facility. Representative listing is shown in Section 8a, Sampling Plan.

4. Inventory Removal, Disposal or Decontamination of Equipment, Structures and Soils:

No additional Hazardous property will be accepted upon formal notification to proceed with facility closure. All hazardous waste property remaining in inventory will be removed by a disposal contractor.

Removal of containerized waste will be verified by a registered professional engineer. All containers will be sealed and labeled prior to shipment. Manifests for container removal will be maintained by The University of Chicago waste facility manager.

Following removal of all hazardous materials, all floors and drains will be washed with an appropriate solvent and/or surfactant solution in accordance with type of hazardous material stored within each storage bay or area. The solvent/surfactant wash residue will be collected, sampled, and analyzed. Washings, collection of wash residues, and sampling of wash residue will be performed until an analysis of the wash residue from all effected surfaces indicates level of contamination is within regulated concentrations.

Verification of such tests will be supplied by an independent laboratory. The wash residue will be containerized and transported to a permanent TSD facility for disposal if necessary.

Facility decontamination procedures will be conducted by trained personnel. Services of these personnel will be obtained at time of closure notification in accordance with contracting procedures established by University of Chicago. University of Chicago will prescribe requirements for decontamination and will require the contractor to provide all necessary equipment and protective clothing to safely effect decontamination.

4a Soil Clean-Up Levels:

No contamination of surface soils is expected in the area surrounding Laboratory Services Building. Soil samples will be taken and analyzed for selected organic/chemical parameters using GC/MS or atomic absorption laboratory analysis in areas of possible contamination. Parameters selected for analysis will be based on type of hazardous waste suspected to have been spilled at location in question.

Contaminated soils will be removed with a back hoe or front end loader and transformed to a permitted hazardous waste disposal facility using University of Chicago's waste disposal contractor.

4b Closure of Containers:

Upon closure all hazardous waste and hazardous waste residue will be removed from the containment system and all areas will be decontaminated or removed using procedures outlined above.

4c Closure of Tank Systems:

University of Chicago facilities do not use tank systems for storage of hazardous waste.

4d Closure of Waste Piles:

University of Chicago facilities do not use waste piles for storage of hazardous waste.

4e Closure of Surface Impoundments:

University of Chicago facilities do not use surface impoundments for storage of hazardous waste.

4f Closure of Incinerators:

University of Chicago facilities do not use incineration for disposal of hazardous waste.

4g Closure of Land Treatment Facilities:

University of Chicago facilities do not use land treatment for treatment of hazardous waste.

4h Closure of Disposal Units:

University of Chicago facilities do not dispose of hazardous chemicals on-site.

5. Schedule For Closure:

- 5a Closure of this facility is not expected before the year 2015. University of Chicago will remove all hazardous waste in accordance with the closure program within 60 days after receipt of the final volume of hazardous waste. Closure will be completed within 180 days thereafter.

Final closure will be supervised and certified by a registered professional engineer. Table 2 presents an estimated schedule of closure which gives an estimate of total time required to close the facility and time required for intervening closure activities.

TABLE 2  
ESTIMATED CLOSURE SCHEDULE FOR UNIVERSITY OF CHICAGO  
LABORATORY SERVICE BUILDING

<u>Closure Activity</u>	<u>Days</u>
Receipt of Final Volume of Hazardous Waste	0
Conduct Final Inventory, Inspect and Repack Drums If Needed, Prepare Waste Manifest, Prepare Items for Shipment	1-60
Remove/Dispose of Final Waste Inventory	60
Solvent Wash and Decontamination of Storage Facility	60-80
Removal, Manifesting and Disposing of Solvent Washing	80-90
Soil Sampling and Analysis	90-110
Removal, Manifesting and Disposal of Contaminated Soil, If Necessary	10-140
Accounting For All Waste Shipment Manifests	170
Completion of Closure and Certification Submittal to Director	180

5b Extensions of Closure Time:

No extension for closure time is anticipated; however, if required a petition will be submitted per Illinois EPA regulations.

6. Air Emissions:

Air emissions related to closure are not expected to be a major factor. Cleaning and decontamination operations will be conducted with adequate ventilation of the facility (area air circulation and exhaust).

7. Personal Safety and Fire Protection:

Personnel handling chemicals in the facility during screening and segregating wear laboratory coats, eye protection, and rubber gloves. A NIOSH-approved respirator protection system suitable for organic vapors and acid gases is available for emergency situations. The acid gas respirator is also used during elementary neutralization procedures in the facility.



The facility is designated a no smoking area with signs posted on each entrance to the building. Electrical fixtures located in storage rooms are explosion-proof, fluorescent or incandescent. The only open flame from the open cup flash point testing device is located in the general screening portion of the laboratory, and precautions are taken to utilize equipment only when small amounts of chemical are present in the room.

8. Sampling Plan and Analytical Methods:

No soil sampling is anticipated as part of the closure of this facility. Sampling of remaining waste materials to be disposed of will be performed.

8a Sampling Plan:

The majority of the chemicals received at the facility are unused portions of raw chemicals in the original container or chemicals used in experiments where the constituents are known. If chemicals are received that have unknown qualities or constituents, analysis is performed by the contractor performing disposal of the chemicals. Unknown chemicals are not normally received at the facility; the quantity averages approximately 20-30 small bottles per year.

Following are typical chemicals stored in the Laboratory Services building. The listing is broken down by storage area within the facility.

Flammable Storage Room: Chemicals stored in the Flammable Storage Room include ethers, toluene, benzene, hexane, ketones, alcohols, used silica gel, phenyls, hydrazine waste, xylene, methylene chloride, pyridine, and various other flammable materials. Containers range in size from small bottles containing only a few grams of material to gallon or larger size containers.

Toxic Storage Room: Chemicals stored in the Toxic Storage Room include cyanides, lead salts, chromates, bromine, mercury salts, chromium waste, and miscellaneous other toxic chemicals. Container sizes range from small size containing only a few ounces to one gallon bottles.

Reactive Storage Room: Chemicals stored in the reactive storage room include ether anhydrous, silane waste, phosphorus pentoxide, acid halides, alkali metals, and miscellaneous other reactive chemicals. Bottles range in size from small containers holding only a few ounces to one gallon jars.

Corrosive Room: Chemicals stored in the corrosives room include hydrochloric acid, potassium hydroxide, ammonium hydroxide, sulphuric acid, chromic acid, and miscellaneous other corrosive chemicals. Containers range in size from pint jars to one gallon bottles.

General screening of chemicals is performed by The University of Chicago. Formal waste analysis is performed by the disposal contractor using procedures outlined in the Waste Analysis Plan. Chemicals with unknown characteristics or constituents are analyzed for hazardous waste characteristics by the disposal contractor.

General screening of chemicals is performed as they enter the facility. Parameters chosen for the screening include literature search, corrosion test, compatibility test, flash point test, and reactivity test. These tests were chosen to screen the chemicals in order to determine proper storage within the facility. Since the majority of chemicals stored at the facility are in original containers or part of chemistry lab experiments where constituents are known, no further analysis is performed.

Chemicals stored at the facility are in small bottles ranging from a few ounces per bottle to approximately one gallon per bottle. A small amount is poured into a sample bottle or a pipette is used for extracting a sample from the bottle if analysis is required. A pipette is used to collect a sample of each layer if material in the bottle appears to be layered.

- 8b. A general screening is performed to segregate materials into proper storage rooms when chemicals are received at the facility. The following tests are performed in order to properly segregate chemicals.

The substance may be characterized by color, viscosity, odor, crystalline form, and a literature search. This general screening is useful for determining hazardous properties that may not be evident by performing other tests.

The pH of acids and bases is determined using test paper (e.g., Hydrior paper) or a pH meter. If solutions exhibit a pH less than 2 or greater than 12.5, they are considered to be corrosive.

A compatibility test is performed using the chemical principal "like dissolves like." The test is performed by adding the substance to a homogeneous mixture of organic solvents (such as acetone, benzene, ether, alcohol, etc.) and observing the solubility. If the substance dissolves or the solution remains single-phased, it is likely to be an organic compound. In order to test for inorganic compounds, the chemical is added to water to check for solubility.

Flammability of volatile organic liquids is determined using a flash point test. An open cup flash point test apparatus is used and the ignition temperature of the liquid is noted.

The substance is checked for reactivity with water or acidic water. Testing involves adding a small amount of chemical to water or acidic water and observing any reactivity that produces heat, fumes or gas.

9. Notice in Deed and Certification:

The University of Chicago Laboratory Service Building is a waste storage facility, not a disposal facility. Since no waste will be disposed of on the property, a notation in the deed or a notice to the local land authority informing potential purchasers that the property has been used to manage hazardous waste is not required

10. Closure Cost Estimate:

The most recent closure cost estimate calculated to cover cost of a closure is \$23,250. The closure cost estimate includes decontamination, analytical costs, and disposal of decontaminating solutions and small amounts of contaminated soil.

11. Financial Assurance Mechanism For Closure:

The financial assurance mechanism for closure for The University of Chicago is a financial test for closure.

12. Post-Closure Plan:

The University of Chicago facility is a container storage facility and not a permanent storage, treatment or disposal facility. A post-closure plan is not required since all material will be removed upon completion of closure. Requirements of post-closure do not apply.

13. Post-Closure Cost Estimate:

No post-closure costs are anticipated for the facility since all waste material will be removed upon completion of closure.

14. Financial Assurance Mechanism For Post-Closure Care:

No financial assurance mechanism for post-closure care is provided since no post-closure costs are anticipated at this time. Requirements of paragraphs under I-7 do not apply.

15. Liability Requirements:

Coverage For Sudden Accidental Occurrences:

Liability coverages are maintained for sudden accidental occurrences in the amount of at least one million dollars for each occurrence with an annual aggregate of at least two million dollars.

Liability coverage is demonstrated through a financial test for liability coverage.

15b Coverage For Non-Sudden Accidental Occurrences:

The University of Chicago is not a disposal or land treatment facility. This section does not apply.

16. Closure Plan Certification Statement:

Closure Plan  
Certification Statement

I certify under penalty of law this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILD005421136  
USEPA ID Number

Laboratory Services Building  
Facility Name

David L. O'Leary  
Signature of Owner/Operator

David L. O'Leary, Assistant Vice President  
Name and Title

September 14, 1990  
Date

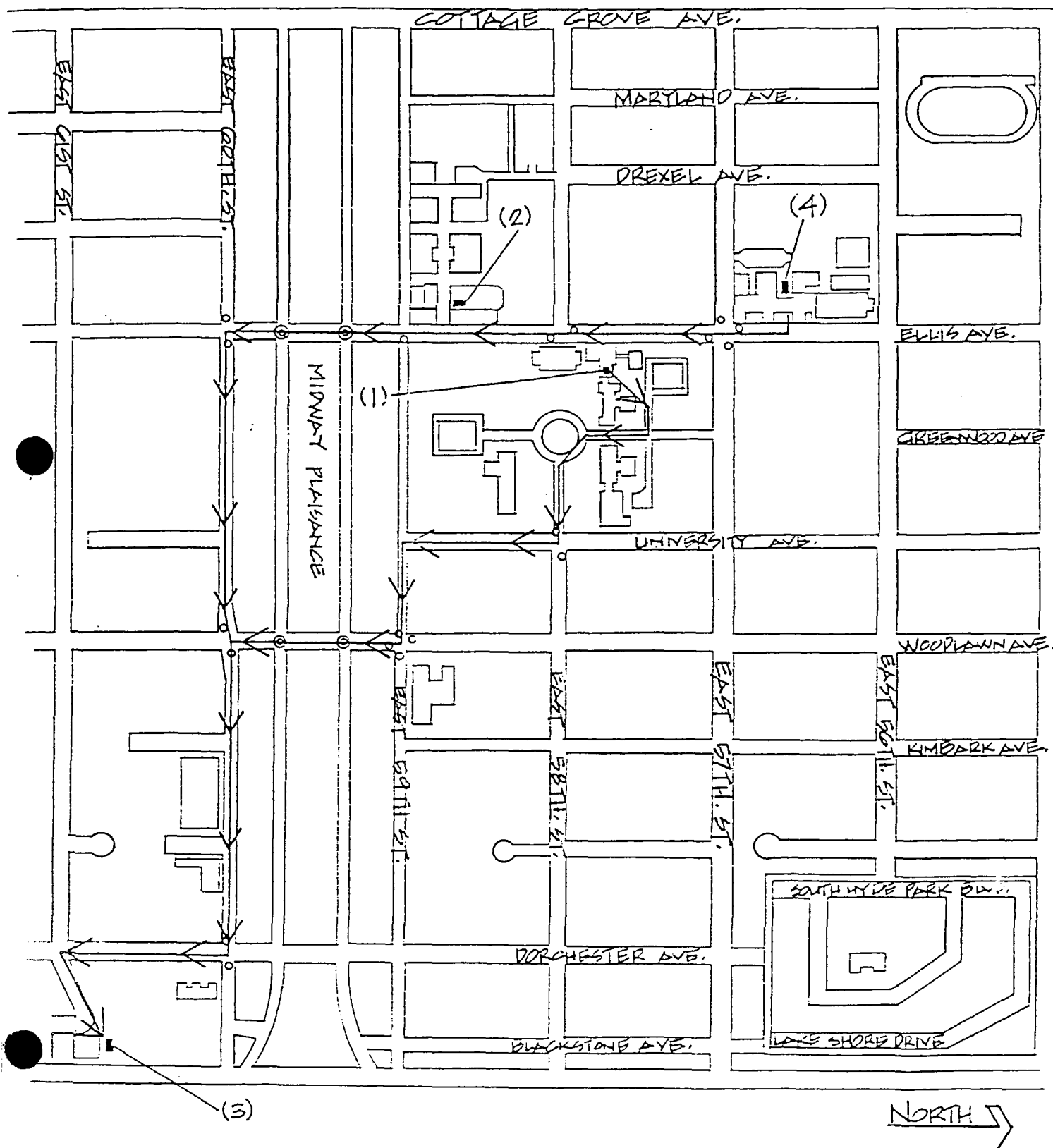
# HAZARDOUS WASTE TRANSPORT ROUTE

## UNIVERSITY OF CHICAGO MAP

- (1) GEORGE HERBERT JONES LABORATORY
- (2) FRANKLIN MCLEAN RESEARCH INSTITUTE BLOCKHOUSE
- (3) LABORATORY SERVICE BUILDING
- (4) RESEARCH INSTITUTE

- STOP SIGNS  
⊙ TRAFFIC LIGHTS

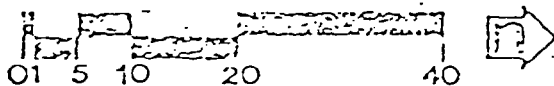
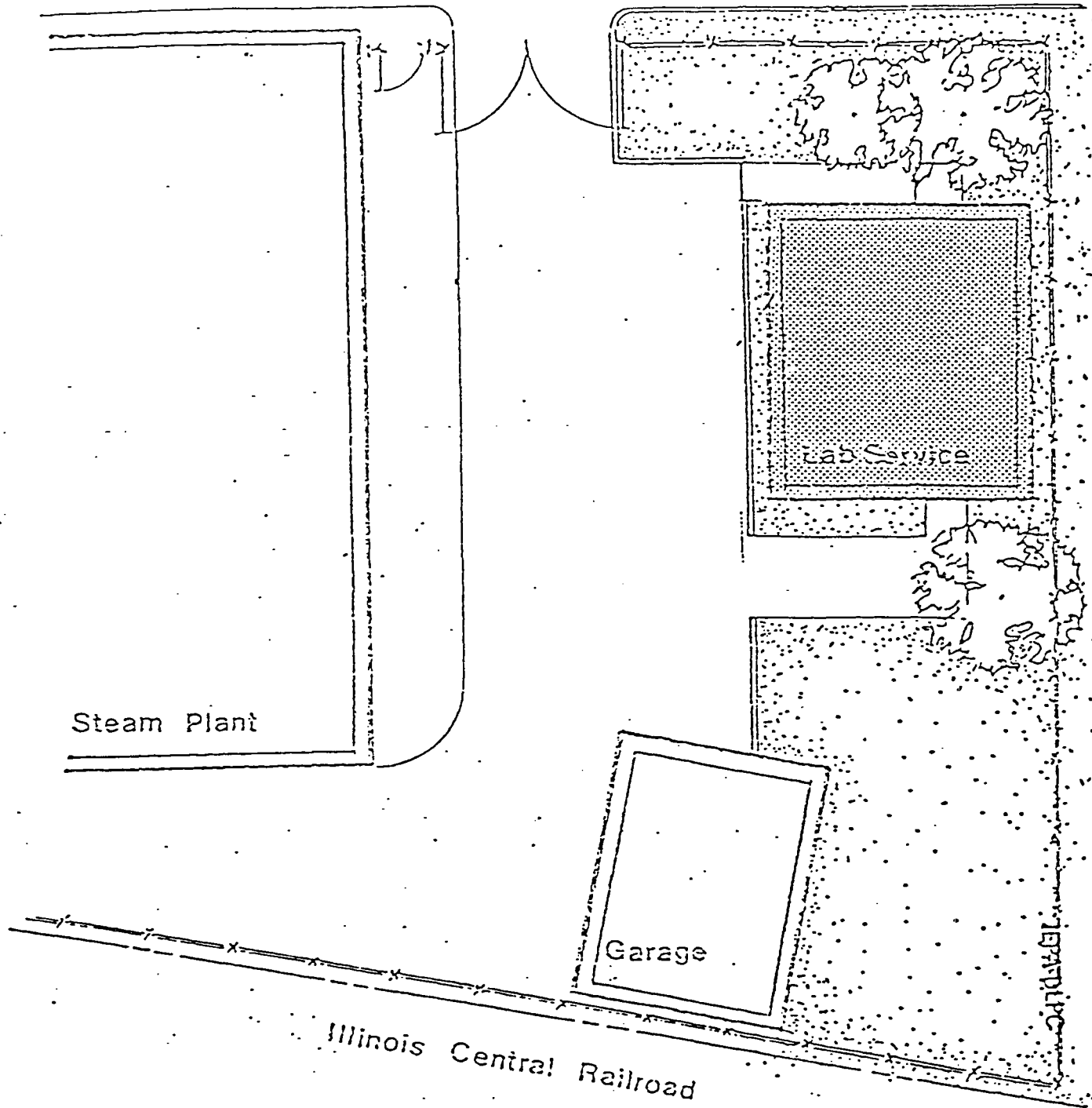
Revision 4  
September 14, 1990



Revision 4  
September 14, 1990

Fig. 2 Laboratory Service Building

S. Blackstone Ave.



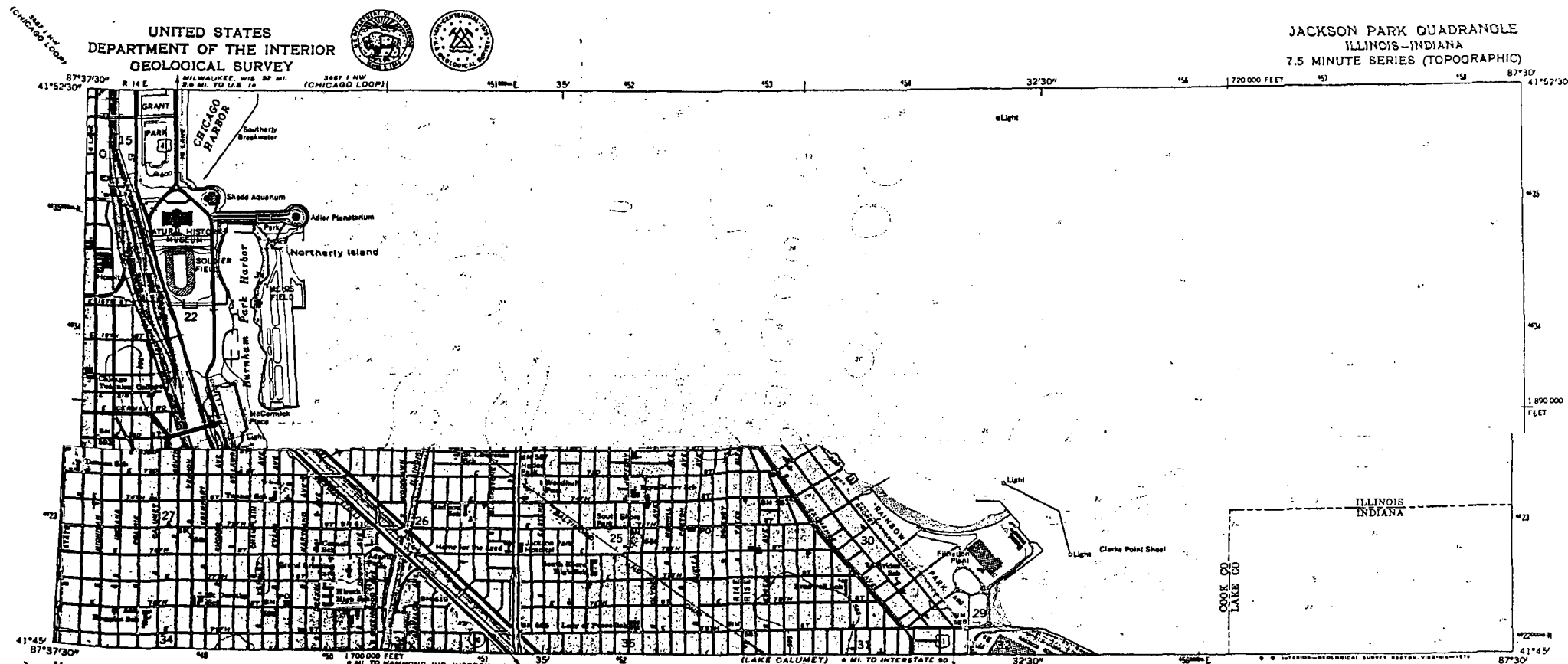
Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRES  
PHYSICAL PLANNING

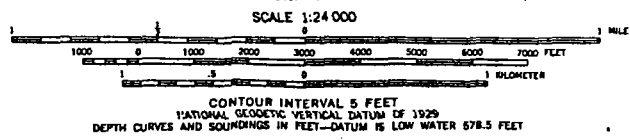
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY



JACKSON PARK QUADRANGLE  
ILLINOIS-INDIANA  
7.5 MINUTE SERIES (TOPOGRAPHIC)



Mapped, edited, and published by the Geological Survey  
in cooperation with State of Illinois Geological Survey  
Control by USGS, USC&GS, and City of Chicago  
Planimetry by photogrammetric methods from aerial photographs  
taken 1962-63. Topography by plane-table surveys 1926. Revised 1963  
Selected hydrographic data compiled from U. S. Lake Survey  
Charts 75 (1960), 751 and 752 (1963)  
This information is not intended for navigational purposes  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on Illinois coordinate system, east zone  
1000-meter Universal Transverse Mercator grid ticks,  
zone 16, shown in blue  
Red tint indicates areas in which only landmark buildings are shown



THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092  
STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801  
AND INDIANA DEPARTMENT OF NATURAL RESOURCES, INDIANAPOLIS, INDIANA 46204  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



ROAD CLASSIFICATION  
Heavy-duty ——— Light-duty ———  
Unimproved dirt ———  
Interstate Route U. S. Route State Route

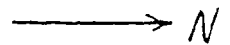
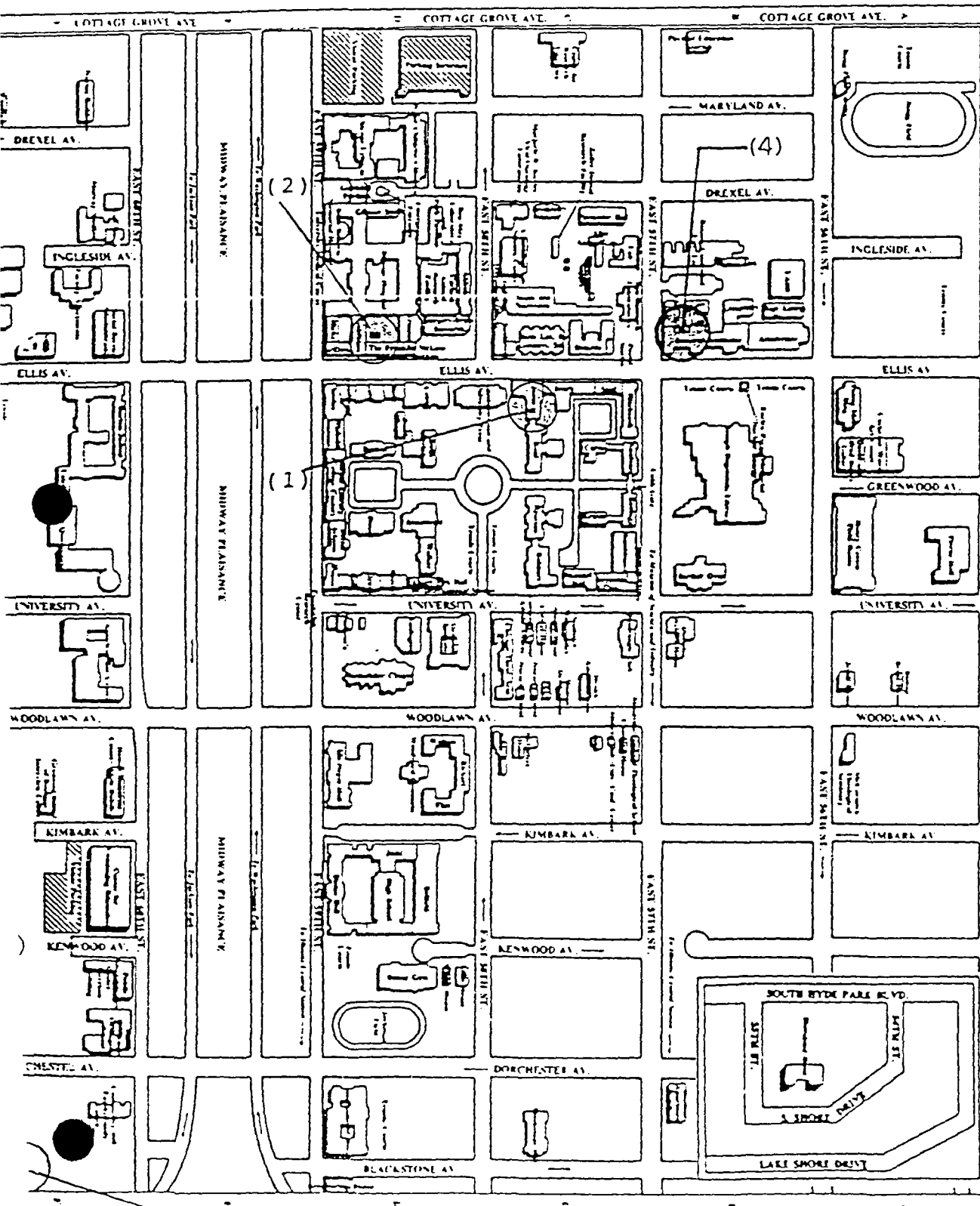
JACKSON PARK, ILL.-IND.  
N4145-W8730/7.5  
1963  
RECEIVED  
NOV 10 1988  
IPADLPC



# HAZARDOUS WASTE ACCUMULATION AND PROCESSING FACILITY

Fig. 2 University of Chicago Map

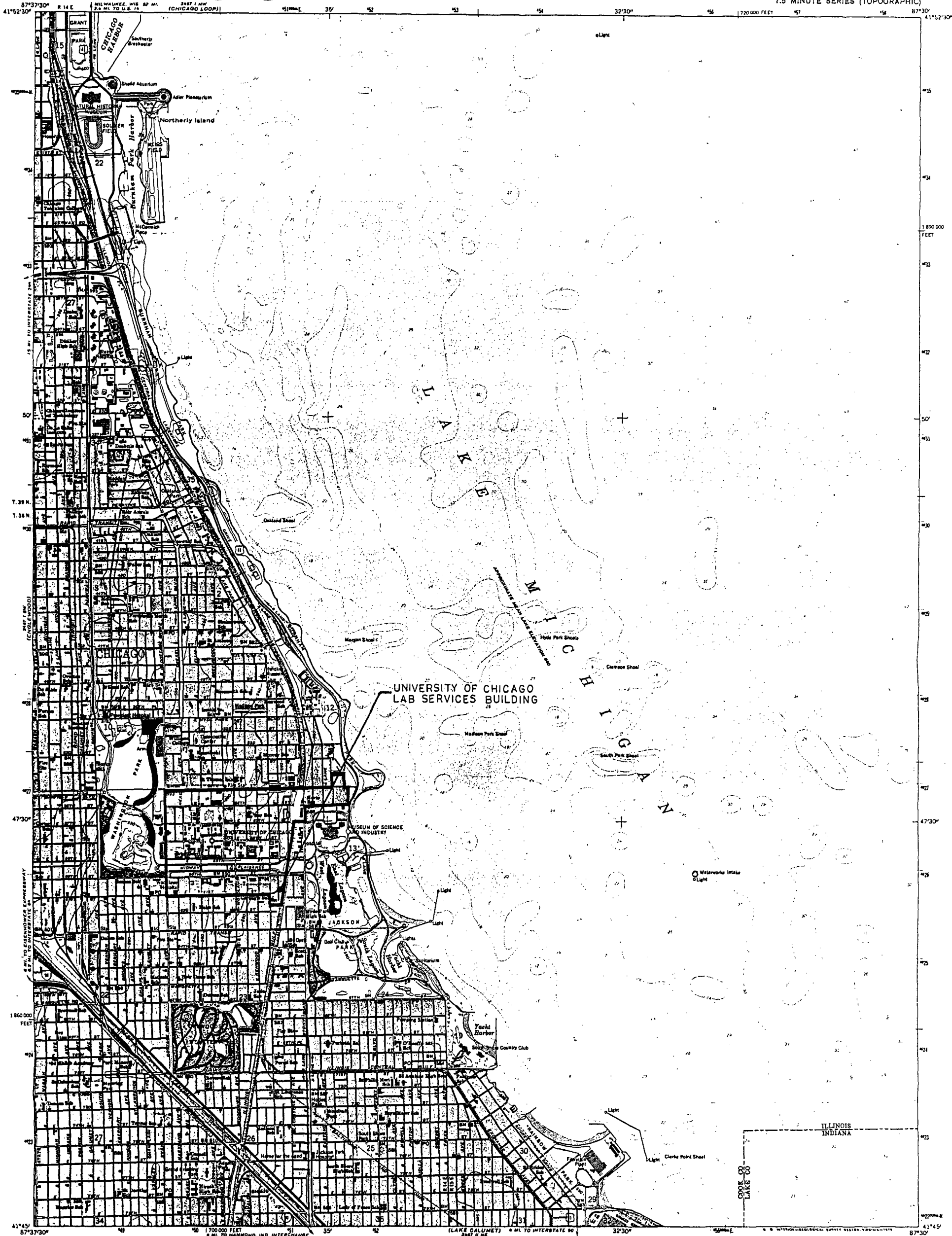
- (1) Room 16 in George Herbert Jones Laboratory
- (2) Franklin McLean Research Institute Blockhouse
- (3) Laboratory Service Building
- (4) Research Institute



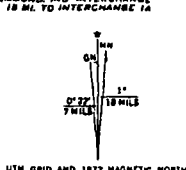
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY



JACKSON PARK QUADRANGLE  
ILLINOIS-INDIANA  
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Charts 75 (1960), 751 and 752 (1963)  
This information is not intended for navigational purposes  
Polyconic projection. 1927 North American datum  
10,000-foot grid based on Illinois coordinate system, east zone  
1000-meter Universal Transverse Mercator grid ticks,  
zone 16, shown in blue  
Red tint indicates areas in which only landmark buildings are shown



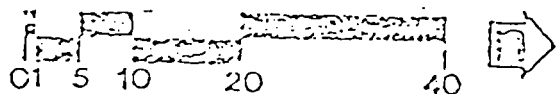
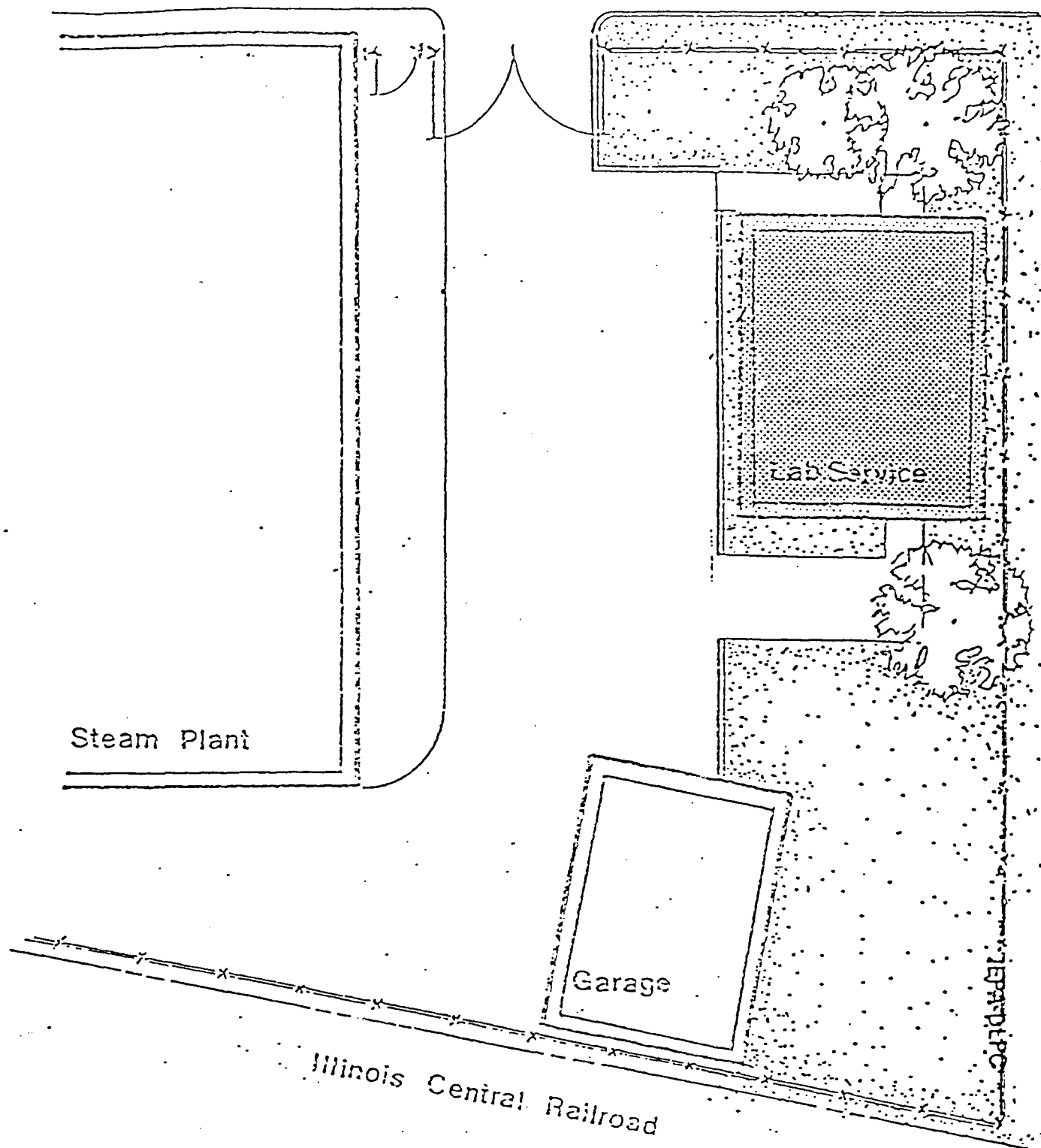
SCALE 1:24 000  
CONTOUR INTERVAL 5 FEET  
NATIONAL GEODETIC VERTICAL DATUM OF 1929  
DEPTH CURVES AND SOUNDINGS IN FEET-DATUM IS LOW WATER 578.5 FEET  
THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS  
FOR SALE BY U.S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092  
STATE GEOLOGICAL SURVEY, URBANA, ILLINOIS 61801  
AND INDIANA DEPARTMENT OF NATURAL RESOURCES, INDIANAPOLIS, INDIANA 46204  
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST  
Revisions shown in purple compiled from aerial photographs taken 1972. This information not field checked  
Purple tint indicates extension of urban areas

ROAD CLASSIFICATION  
Heavy-duty ——— Light-duty ———  
Unimproved dirt ———  
Interstate Route U.S. Route State Route  
QUADRANGLE LOCATION  
JACKSON PARK, ILL.-IND.  
N4145-W8730/7.5  
1963  
REVISED 1972  
4471 SE-SERIES V863

RECEIVED  
NOV 10 1988  
IPAD-LPC

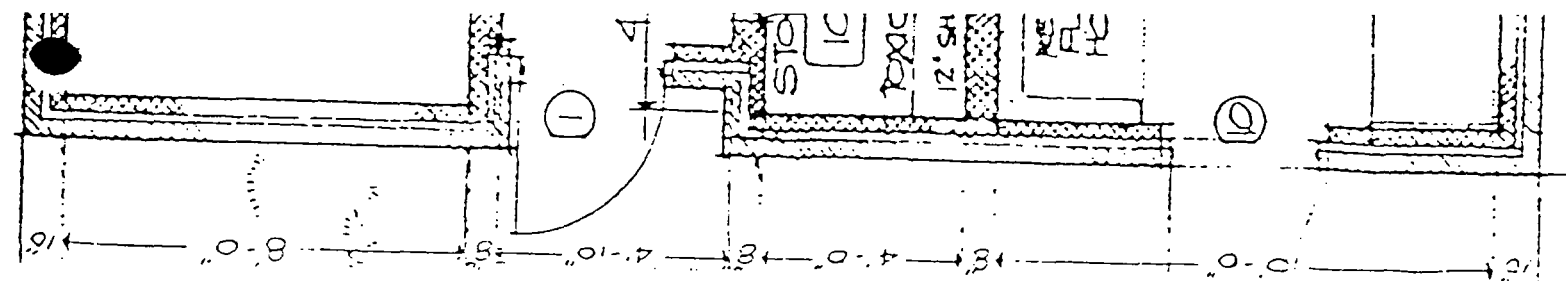
Fig. 5 Laboratory Service Building

S. Blackstone Ave.



Laboratory Service Building

THE UNIVERSITY OF CHICAGO  
OFFICE OF THE ASSISTANT VICE-PRESIDENT  
PHYSICAL PLANNING



THE UNIVERSITY OF CHICAGO

5801 ELLIS AVENUE  
CHICAGO · ILLINOIS 60637

ALEXANDER E. SHARP  
*Vice-President for Business and Finance*

November 7, 1988

(312) 962-8804

Regional Administrator  
E.P.A. Region V  
Waste Management Branch  
230 South Dearborn Street  
Chicago, Illinois 60604

Re: The University of Chicago  
5801 South Ellis Avenue, Chicago, IL  
Part B Application for RCRA Operating  
Permit No. USEPA ILD 005421136  
ILL EPA No. 0316410001

Dear Sir:

I am the Chief Financial Officer of The University of Chicago, 5801 South Ellis Avenue, Chicago, Illinois 60637. This letter is in support of the use of its financial test to demonstrate financial responsibility for liability coverage and closure and/or post-closure care as specified in Subpart H of CFR Parts 264 and 265.

The firm identified above is the owner or operator of the following facilities for which liability coverage for both sudden and nonsudden accidental occurrences is being demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265.

The University of Chicago  
5801 South Ellis Avenue, Chicago, IL 60637  
USEPA No. ILD005421136  
ILL EPA No. 0316410001

The firm identified above guarantees through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, liability coverage for both sudden and nonsudden accidental occurrences at the following facilities owned or operated by the following subsidiaries of the firm.

None

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility:



Peat Marwick

Certified Public Accountants

**Peat Marwick Main & Co.**

Peat Marwick Plaza  
303 East Wacker Drive  
Chicago, IL 60601

The Board of Trustees  
The University of Chicago:

We have audited the balance sheet of The University of Chicago as of June 30, 1988, and the related statements of changes in fund balances for the year then ended and have issued our report thereon dated September 29, 1988. Our opinion was qualified as to consistency in the University's method of computing pension expense. Our audit was performed in accordance with generally accepted auditing standards and, accordingly, included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

As specified in Subpart H of 40 CFR Parts 264 and 265, we have compared the tangible net worth (defined as Total University fund balances) of \$1,185,894,000 and total University assets in the U.S. of \$1,474,977,000 as of June 30, 1988, which are included in two letters dated November 7, 1988 from Mr. Alexander E. Sharp, Vice President for Business & Finance, The University of Chicago, to the Regional Administrator, E.P.A. Region V, to the aforementioned financial statements.

In connection with the procedures referred to above, nothing came to our attention that caused us to believe that the amounts of tangible net worth and total assets in the U.S. included in the November 7, 1988 letter of Mr. Sharp should be adjusted. It is understood that this report is solely for your information and is not to be referred to or distributed for any purpose other than distribution to the agency listed in the preceding paragraph.

*Peat Marwick Main & Co.*

November 7, 1988



Member Firm of  
Klynveld Peat Marwick Goerdeler

THE UNIVERSITY OF CHICAGO

5801 ELLIS AVENUE  
CHICAGO · ILLINOIS 60637

ALEXANDER E. SHARP  
Vice-President for Business and Finance

(312) 962-8804

November 7, 1988

Regional Administrator  
E.P.A. Region V  
Waste Management Branch  
230 South Dearborn Street  
Chicago, Illinois 60604

Re: The University of Chicago  
5801 South Ellis Avenue, Chicago, IL  
Part B Application for RCRA Operating  
Permit No. USEPA ILD005421136  
ILL EPA No. 0316410001

Dear Sir:

I am the Chief Financial Officer of The University of Chicago, 5801 South Ellis Avenue, Chicago, Illinois 60637. This letter is in support of the firm's use of its financial test to demonstrate financial assurance, as specified in Subpart H of 40 CFR Parts 264 and 265.

1. The firm is the owner or operator of the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility:

The University of Chicago  
5801 South Ellis Avenue, Chicago, IL 60637  
USEPA No. ILD005421136  
ILL EPA No. 0316410001

Closure Cost	\$11,500
Post-Closure Cost	-0-

2. The firm guarantees through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure or post-closure care of the following facilities owned or operated by subsidiaries of this firm. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility:

None

## LETTER FROM CHIEF FINANCIAL OFFICER

(REVISED)

(To demonstrate liability coverage and/or to demonstrate  
both liability coverage and assurance of closure  
and/or post-closure care.)

Director  
Illinois Environmental Protection Agency  
2200 Churchill Road  
P.O. Box 19276  
Springfield, Illinois 62794-9276

Dear Sir or Madam:

I am the chief financial officer of The University of Chicago, 5801 S. Ellis Avenue, Chicago, Ill. 60637

This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure  
and/or post-closure care as specified in Subpart H of 40 CFR Parts 264 and 265 and/or Subpart H of 35 Illinois  
Administrative Code Parts 724 and 725.

The firm identified above is the owner or operator of the following facilities for which liability coverage for both sudden and nonsudden  
accidental occurrences is being demonstrated through the financial test specified in Subpart H of Illinois Administrative Code 724 and 725.

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No. ILD005421136  
Name The University of Chicago  
Address 5801 S. Ellis Avenue  
City Chicago, Illinois 60637

This firm identified above guarantees, through the corporate guarantee specified in Subpart H of 35 Illinois Administrative Code 724 and 725, liability  
coverage for both sudden and nonsudden accidental occurrences at the following facilities owned or operated  
by the following subsidiaries of the firm:

USEPA I.D. No. \_\_\_\_\_  
Name NONE  
Address \_\_\_\_\_  
City \_\_\_\_\_

USEPA I.D. No. \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
City \_\_\_\_\_

The Agency is authorized to require, pursuant to Illinois Revised Statutes 1983, Chapter 111 1/2, Paragraphs 1021(d) and 1021.1, that this information be submitted to the Agency by any person conducting a waste disposal operation. Failure to provide this information or falsification of this information may result in a civil penalty of not to exceed \$10,000 and an additional civil penalty not to exceed \$1,000 per day of violation, and a fine not to exceed \$1,000 and imprisonment up to one year. This form has been approved by the Forms Management Center.

- I. The firm identified above owns or operates the following facilities for which financial assurance for closure and/or post-closure care is demonstrated through the financial test specified in Subpart H of 35 Ill. Adm. Code Parts 724 and 725. The current closure and/or post-closure cost estimates covered by the test are shown for each facility:

(Please attach a separate page if more space is needed for all facilities.)

USEPA I.D. No.	Closure Amount	Post-Closure Amount	Closure and Post-Closure Amounts
(5)	(6)	(7)	(8)
ILD005421136			
Name The University of Chicago			
Address 5801 S. Ellis Avenue	\$11,500	-0-	\$11,500
City Chicago, Illinois 60637			

USEPA I.D. No.

Name

Address

City

2. The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 35 Ill. Adm. Code Parts 724 and 725, the closure and/or post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for closure or post-closure care so guaranteed are shown for each facility:

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No.	Closure Amount	Post-Closure Amount	Closure and Post-Closure Amounts
(5)	(6)	(7)	(8)
NONE			

Name

Address

City

USEPA I.D. No.

Name

Address

City

3. In states where IEPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 and 265, this firm is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure or post-closure cost estimates covered by such a test are shown for each facility:

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No.	Closure Amount	Post-Closure Amount	Closure and Post-Closure Amounts
(5)	(6)	(7)	(8)
NONE			

Name

Address

City



USEPA I.D. No. \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurances for closure or, if a disposal facility, post-closure care, is not demonstrated either to IEPA, USEPA or a State through the financial test or any other financial assurance mechanisms specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent state mechanisms. The current closure or post-closure cost estimates not covered by such financial assurance are shown for each facility:

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No.	Closure Amount	Post-Closure Amount	Closure and Post-Closure Amounts
(5)	(6)	(7)	(8)

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

USEPA I.D. No. \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144. The current closure cost estimates as required by 40 CFR 144.62 or Subpart A of Illinois Administrative Code 704 are shown for each facility.

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No.	Closure Amount
(5)	(6)

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

USEPA I.D. No. \_\_\_\_\_

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

This firm is not required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on June 30. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended June 30, 1988.

Part A. Liability Coverage for Accidental Occurrences (See Instruction 12 and (13))

Alternative I

1. Amount of annual aggregate liability coverage to be demonstrated ..... \$ \_\_\_\_\_

2. Current assets ..... \$ \_\_\_\_\_

\*3. Current liabilities ..... \$ \_\_\_\_\_

4. Net working capital (line 2 minus line 3) ..... \$ \_\_\_\_\_

\*5. Tangible net worth ..... \$ \_\_\_\_\_

\*6. If less than 90% of assets are located in the U.S., give total U.S. assets ..... \$ \_\_\_\_\_

Yes      No

7. Is line 5 at least \$10 million? ..... / \_\_\_\_\_

8. Is line 4 at least 6 times line 1? ..... / \_\_\_\_\_

9. Is line 5 at least 6 times line 1? ..... / \_\_\_\_\_

\*10. Are at least 90% of assets located in the U.S.? ..... / \_\_\_\_\_  
If not, complete line 11.

11. Is line 6 at least 6 times line 1? ..... / \_\_\_\_\_

Signature \_\_\_\_\_

Typed name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

Part A. Liability Coverage for Accidental Occurrences (See Instruction 12 and (13))

Alternative II

1. Amount of annual aggregate liability coverage to be demonstrated ..... \$ \_\_\_\_\_

2. Current bond rating of most recent issuance and name of rating service ..... \_\_\_\_\_

3. Date of issuance of bond ..... \_\_\_\_\_

4. Date of maturity of bond ..... \_\_\_\_\_

\*5. Tangible net worth ..... \$ \_\_\_\_\_

\*6. Total assets in U.S. (required only if less than 90% of assets are located in U.S.) ..... \$ \_\_\_\_\_

Yes      No

7. Is line 5 at least \$10 million? ..... / \_\_\_\_\_

8. Is line 5 at least 6 times line 1? ..... / \_\_\_\_\_

\*9. Are at least 90% of assets located in the U.S.? ..... / \_\_\_\_\_  
If not, complete line 10.

10. Is line 6 at least 6 times line 1? ..... / \_\_\_\_\_

Signature \_\_\_\_\_

Typed name \_\_\_\_\_

Title \_\_\_\_\_

Date \_\_\_\_\_

**Part B. Closure or Post-Closure Care and Liability Coverage (See Instructions 14 and 15)**

**Alternative I**

1. Sum of current closure and post-closure cost estimates (total of *all* cost estimates listed above) ..... \$ \_\_\_\_\_
2. Amount of annual aggregate liability coverage to be demonstrated ..... \$ \_\_\_\_\_
3. Sum of lines 1 and 2 ..... \$ \_\_\_\_\_
- \*4. Total liabilities (if any portion of your closure or post-closure cost estimates is included in your total liabilities, you may deduct that portion from this line and add that amount to lines 5 and 6) ..... \$ \_\_\_\_\_
- \*5. Tangible net worth ..... \$ \_\_\_\_\_
- \*6. Net worth ..... \$ \_\_\_\_\_
- \*7. Current assets ..... \$ \_\_\_\_\_
- \*8. Current liabilities ..... \$ \_\_\_\_\_
9. Net working capital (line 7 minus line 8) ..... \$ \_\_\_\_\_
- \*10. The sum of net income plus depreciation, depletion, and amortization ..... \$ \_\_\_\_\_
- \*11. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) ..... \$ \_\_\_\_\_
- |  | Yes           | No            |
|--|---------------|---------------|
| 12. Is line 5 at least \$10 million? .....                 | _____ / _____ | _____ / _____ |
| 13. Is line 5 at least 6 times line 3? .....               | _____ / _____ | _____ / _____ |
| 14. Is line 9 at least 6 times line 3? .....               | _____ / _____ | _____ / _____ |
| *15. Are at least 90% of assets located in the U.S.? ..... | _____ / _____ | _____ / _____ |
| If not, complete line 16.                                  |               |               |
| 16. Is line 11 at least 6 times line 3? .....              | _____ / _____ | _____ / _____ |
| 17. Is line 4 divided by line 6 less than 2.0? .....       | _____ / _____ | _____ / _____ |
| 18. Is line 10 divided by line 4 greater than 0.1? .....   | _____ / _____ | _____ / _____ |
| 19. Is line 7 divided by line 8 greater than 1.5? .....    | _____ / _____ | _____ / _____ |

Signature

Typed name

Title

Date

Part B. Closure or Post-Closure Care and Liability Coverage (See Instructions 14 and 15)

Alternative II

1. Sum or current closure and post-closure cost estimates (total of all cost estimates listed above) ..... \$ 11,500
2. Amount of annual aggregate liability coverage to be demonstrated ..... \$ 2,000,000
3. Sum of lines 1 and 2 ..... \$ 2,011,500
4. Current bond rating of most recent issuance and name of rating service ..... AA - Standard & Poor  
Aaa - Moody
5. Date of issuance of bond ..... June 2, 1986
6. Date of maturity of bond ..... December 1, 2025
- \*7. Tangible net worth (if any portion of the closure or post-closure cost estimates is included in "total liabilities" on your financial statements you may add that portion to this line) ..... \$ 1,185,894,000
- \*8. Total assets in the U.S. (required only if less than 90% of assets are located in the U.S.) ..... \$ 1,474,977,000
- |  | Yes      | No |
|--|----------|----|
| 9. Is line 7 at least \$10 million? .....                  | <u>X</u> | /  |
| 10. Is line 7 at least 6 times line 3? .....               | <u>X</u> | /  |
| *11. Are at least 90% of assets located in the U.S.? ..... | <u>X</u> | /  |
| If not, complete line 12.                                  |          |    |
| 12. Is line 8 at least 6 times line 3? .....               | <u>X</u> | /  |

Signature

Typed name

Alexander E. Sharp

Title

Vice President for Business & Finance

Date

November 7, 1988

I. CLOSURE AND POST-CLOSURE REQUIREMENTS

This section identifies steps necessary to partially close the facility at any point during its intended operating life and to completely close the facility at the end of its intended operating life.

I-1 Closure Plans:

A copy of the written closure plan for Laboratory Service Building is attached. The University of Chicago will maintain a copy of the closure plan and all revisions to the plan until Certification of Closure Completeness has been submitted and accepted by the director. The University of Chicago representative will submit the closure plan to Illinois EPA at least 180 days prior to date the storage facility expects to begin final closure. Any modifications to existing equipment, structures, instruments, or procedures related to management of the facility will require The University of Chicago to revise the closure plan accordingly.

I-1a Closure Performance Standard:

If there is evidence of spills or leaks at time of closure, samples will be taken and analyzed to determine extent of contamination in buildings previously used to store hazardous waste, in soil surrounding the building and, if necessary, in groundwater. Contaminated soil will be excavated, removed, and disposed at a proper disposal facility. Contaminated building surfaces will be decontaminated as described in Section I-1d of this permit application. Contaminated groundwater attributable to handling practices of hazardous waste at this facility will be treated as described in Section I-1d of this permit application, so that contamination resulting from the above handling practices is below local, state, and/or federal limits specific for that contaminant. Should soil be removed during decontamination, the entire site will be regarded subsequent to closure to reduce erosion. The University of Chicago will submit a certification by an independent registered professional engineer that the facility has been closed in accordance with specifications in the approved closure plan upon completion of closure. The closure will comply with 724.211, and will eliminate the need for post-closure activity.

I-1b Partial Closure Activities:

No partial closure of the facility is anticipated at this time.

I-1c Maximum Waste Inventory:

Maximum amount of hazardous waste stored in the facility at any one time is estimated to be approximately 2,000 liters. Type of waste will be primarily ignitable with small quantities of corrosive, reactive, and toxic. Type of waste varies since waste received at the facility comes from a variety of research laboratories. It is not possible at this time to provide a complete inventory of every waste type that may be stored at the facility.

I-1d Inventory Removal, Disposal or Decontamination of Equipment, Structures and Soils:

No additional hazardous property will be accepted upon formal notification to proceed with facility closure. All hazardous waste property remaining in inventory will be removed by a disposal contractor.

Removal of containerized waste will be verified by a registered professional engineer. All containers will be sealed and labeled prior to shipment. Manifests for container removal will be maintained by The University of Chicago waste facility manager.

Following removal of all hazardous materials, all floors and drains will be washed with an appropriate solvent and/or surfactant solution in accordance with type of hazardous material stored within each storage bay or area. The solvent/surfactant wash residue will be collected, sampled, and analyzed. Washings, collection of wash residues, and sampling of wash residue will be performed until an analysis of the wash residue from all effected surfaces indicates level of contamination is within regulated concentrations. Verification of such tests will be supplied by an independent laboratory. The wash residue will be containerized and transported to a permanent TSD facility for disposal if necessary.

Facility decontamination procedures will be conducted by trained personnel. Services of these personnel will be obtained at time of closure notification in accordance with contracting procedures established by The University of Chicago. The University of Chicago will prescribe requirements for decontamination and will require the contractor to provide all necessary equipment and protective clothing to safely effect decontamination.

No contamination of surface soils is expected in the area surrounding Laboratory Services Building. Soil samples will be taken and analyzed for selected organic/chemical parameters using GC/MS or atomic absorption laboratory analysis in areas of possible contamination. Parameters selected for analysis will be based on type of hazardous waste suspected to have been spilled at location in question. Samples will be compared with samples collected in assumed non-contaminated areas to determine if contamination from the facility is present. If found, contaminated soil will be removed and disposed of using acceptable methods and requirements.

Empty containers, shelves, and other equipment will be decontaminated using procedures applied to the facility. The equipment will be washed and rinsate collected for disposal. The rinsate will be analyzed to determine compliance with applicable regulatory levels for the contaminants. Once the rinsate levels are below the regulatory level, the equipment will be disposed of as non-hazardous material. All wash solutions and rinsate will be collected and disposed of in accordance with regulatory requirements.

Contaminated soils will be removed with a back hoe or front end loader and transformed to a permitted hazardous waste disposal facility using The University of Chicago's waste disposal contractor.

I-1d(1) Closure of Containers:

Upon closure all hazardous waste and hazardous waste residue will be removed from the containment system and all areas will be decontaminated or removed using procedures outlined in Paragraph I-1d.

I-1d(2) Closure of Tank Systems:

The University of Chicago facilities do not use tank systems for storage of hazardous waste. This paragraph does not apply.

i-1d(3) Closure of Waste Piles:

The University of Chicago facilities do not use waste piles for storage of hazardous waste. This paragraph does not apply.

I-1d(4) Closure of Surface Impoundments:

The University of Chicago facilities do not use surface impoundments for storage of hazardous waste. Requirements of this paragraph do not apply.

I-1d(5) Closure of Incinerators:

The University of Chicago facilities do not use incineration for disposal of hazardous waste. Requirements of this paragraph do not apply.

I-1d(6) Closure of Land Treatment Facilities:

The University of Chicago facilities do not use land treatment for treatment of hazardous waste. Requirements of paragraphs under I-1d(6) do not apply.

I-1e Closure of Disposal Units:

The University of Chicago facilities do not dispose of hazardous chemicals on-site. Requirements of paragraphs under I-1e do not apply.

I-1f Schedule For Closure:

Closure of this facility is not expected before the year 2015. The University of Chicago will remove all hazardous waste in accordance with the closure program within 60 days after receipt of the final volume of hazardous waste. Closure will be completed within 180 days thereafter.



Final closure will be supervised and certified by a registered professional engineer. Table I-1 presents an estimated schedule of closure which gives an estimate of total time required to close the facility and time required for intervening closure activities.

TABLE I-1  
ESTIMATED CLOSURE SCHEDULE FOR UNIVERSITY OF CHICAGO  
LABORATORY SERVICE BUILDING

<u>Closure Activity</u>	<u>Days</u>
Receipt of Final Volume of Hazardous Waste	0
Conduct Final Inventory, Inspect and Repack Drums If Needed, Prepare Waste Manifest, Prepare Items for Shipment	1-60
Remove/Dispose of Final Waste Inventory	60
Solvent Wash and Decontamination of Storage Facility	60-80
Removal, Manifesting and Disposing of Solvent Washing	80-90
Soil Sampling and Analysis	90-110
Removal, Manifesting and Disposal of Contaminated Soil, If Necessary	10-140
Accounting For All Waste Shipment Manifests	170
Completion of Closure and Certification Submittal to Director	180

I-1g Extensions of Closure Time:

No extension for closure time is anticipated; however, if required a petition will be submitted per Illinois EPA regulations.

I-2 Post-Closure Plan:

University of Chicago facility is a container storage facility and not a permanent storage, treatment or disposal facility. A post-closure plan is not required since all material will be removed upon completion of closure. Requirements of paragraphs under I-2 do not apply.

I-3 Notice in Deed and Certification:

The University of Chicago Laboratory Service building is a waste storage facility, not a disposal facility. Since no waste will be disposed of on the property, a notation in the deed or a notice to the local land authority informing potential purchases that the property has been used to manage hazardous waste is not required.

I-4 Closure Cost Estimate:

The most recent closure cost estimate calculated to cover cost of a closure is \$23,250. The closure cost estimate includes decontamination, analytical costs, and disposal of decontaminating solutions and small amounts of contaminated soil.

Closure Cost Estimate

Inventory Removal (prior to closure)	\$ -0-
Decontamination	4,000.00
Disposal of Chemicals	11,000.00
Disposal of Decon Solution	1,250.00
Consulting Time	1,500.00
Removal of Waste	<u>5,000.00</u>
	\$23,250.00

I-5 Financial Assurance Mechanism For Closure:

The financial assurance mechanism for closure for the University of Chicago is a financial test for closure. Documentation for this is provided as an attachment to this permit application.

I-6 Post-Closure Cost Estimate:

No post-closure costs are anticipated for the facility since all waste material will be removed upon completion of closure.

I-7 Financial Assurance Mechanism For Post-Closure Care:

The financial assurance mechanism for post-closure case is provided since no post-closure costs are anticipated at this time. Requirements of paragraphs under 1-7 do not apply.

I-8 Liability Requirements:

I-8a Coverage for Sudden Accidental Occurrences:

Liability coverages are maintained for sudden accidental occurrences in the amount of at least one million dollars for each occurrence with an annual aggregate of at least two million dollars.

Liability coverage is demonstrated through a financial test for liability coverage. Documentation for this is provided as an attachment to this permit application.

I-8b Coverage For Non-Sudden Accidental Occurrences:

The University of Chicago does not operate a surface impoundment, landfill, or land treatment facility. This section does not apply.

J. OTHER FEDERAL LAWS

As of this time, University of Chicago does not anticipate any problems with other federal laws with operation of the Laboratory Services Building.

THE UNIVERSITY OF CHICAGO  
OPERATIONS

970 EAST 58TH STREET  
CHICAGO • ILLINOIS 60637

September 12, 1990

Illinois Environmental Protection Agency  
Division of Land Pollution Control - #24  
Prior Conduct Certification Review  
2200 Churchill Road  
P. O. Box 19276  
Springfield, Illinois 62794

Dear Sir:

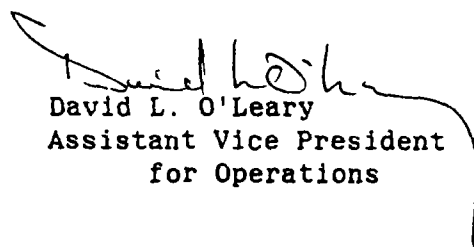
Enclosed please find the Prior Conduct Certification Evaluation form as a requirement for part of our RCRA Part B application.

The University of Chicago is the owner/operator of the Laboratory Service Building, located at 6041 South Blackstone Avenue, Chicago, Illinois. The facility is the chemical waste management unit for the University.

In filling out the Prior Conduct Certification Evaluation form, an affirmative answer to item II. 1) is the result of an Illinois EPA facility inspection followed by a Pre-Enforcement Conference which took place in April of 1989. Please see the conference letter attached, dated April 27, 1989. In the conference the validity of the cited violations was discussed and the resulting issues were resolved subsequently. Please see enclosed copies of all five resolution letters.

Should you have any questions, please contact me either in writing or by telephone (312) 702-8826.

Sincerely yours,

  
David L. O'Leary  
Assistant Vice President  
for Operations

Enclosures

PRIOR CONDUCT CERTIFICATION EVALUATION

Owner/Operator Name: David L. O'Leary Social Security No. Non-releasable  
Address: Operations Office, The University of Chicago  
970 E. 58th Street, Chicago, Illinois 60637  
Site Name: Laboratory Service Building Site Code 0316410001

- I. Other hazardous waste sites owned or operated (anywhere) at anytime. (If more than one attach the name, address and nature of each site)

Site Name: \_\_\_\_\_ Site Code \_\_\_\_\_  
Site Address: \_\_\_\_\_

- II. All of the following questions need to be answered. If the answer to any of the following is affirmative attach a copy of any final administrative or judicial determination.

- 1) Have you ever violated any federal, state, or local laws, regulations or ordinances governing the operation of any waste disposal site? YES NO  
2) Have you ever been convicted in Illinois or any other state of any crime which is a felony under Illinois law or been convicted of a felony in a federal court? YES NO  
3) Have you ever been proven to have shown gross carelessness in the handling storing, processing, transporting or disposing of any hazardous waste in any state? YES NO

- III. Is there any administrative or judicial proceeding, which is still pending, which:

- 1) Could result in a determination of the type described in section II above; or YES NO  
2) Could result in the reversal of any administrative or judicial determination provided in response to section II above. YES NO

If the answer to any of the above is yes provide a description including the name of the Agency or Court, title, docket No. and status.

CERTIFICATION STATEMENT

I certify under penalty of law that the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

David L. O'Leary  
Signature of Applicant  
Assistant Vice President for Operations  
Title  
September 12, 1990  
Date

For Agency Use Only

Log No. PCC- \_\_\_\_\_  
Final Action \_\_\_\_\_

Date Received: RECEIVED  
Date: \_\_\_\_\_

LWE:jcd/0412k/sp

SEP 17 1990

IEPA-DLPC

### COMPLETING THE FORM

As part of the IEPA review of Part B permit applications, the Illinois Environmental Protection Act (Sec. 39(1)) requires that an investigation of the owner/operators prior experience be conducted. Therefore any official representative of the applicant who is considered authorized to sign applications, must complete and submit the attached form. Those persons authorized to sign applications are identified in 35 IAC 702.106. In responding please identify all the authorized official representatives of the applicant, and their titles in a cover letter, and attach their completed prior conduct forms. For example, a corporation should identify the president, vice president, secretary and treasurer, and any other person who performs similar policy or decision making functions. Failure to comply with this request will result in a delay in the processing of a Part B, and may result in denial.

**General:** Provide the owner/operator's name, Social Security number, and address as well as the site name and site code. The site name should be the same as the name on the most recent operating permit.

**Part I:** Information on ownership and/or operation of other waste disposal sites, even if located in other states, must be provided. If more than one additional site is owned/operated, attach this information.

**Part II:** This part of the application deals with the operator's prior conduct, in other states as well as in Illinois. If there is any confusion on completing this part, the operator should attach a complete explanation as well as any supporting documentation. This part (and part III) applies to hazardous and non-hazardous facilities.

**Part III.** This part deals with pending actions which could impact the application. If final decisions are reached during the certification review it is the operator's responsibility to provide supplemental information within 30 days.

An original and two copies of all applications shall be submitted by registered or certified mail to:

Illinois Environmental Protection Agency  
Division of Land Pollution Control - #24  
Prior Conduct Certification Review  
2200 Churchill Road  
P.O. Box 19276  
Springfield, Illinois 62794-9276

LE:/0412k,2.sp

K. PART B CERTIFICATIONS

The following certification is provided in accordance with Illinois EPA Regulation 702.126.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

David L. O'Leary  
David L. O'Leary  
Assistant Vice President

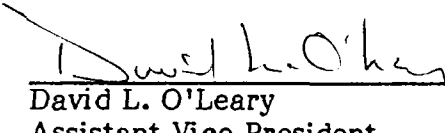
9/14/90  
(Date)



K. PART B CERTIFICATIONS

The following certification is provided in accordance with Illinois EPA Regulation 702.126.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is to the best of my knowledge and belief true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

  
\_\_\_\_\_  
David L. O'Leary  
Assistant Vice President

1/22/90  
(Date)

L. CONTINUING RELEASES AT PERMANENT FACILITIES

L-1 Solid Waste Management Units:

University of Chicago has not operated landfills, surface impoundments, waste piles, land treatment units, injection wells, tanks, or containers at the campus facilities. The University did operate incinerators for the disposal of infectious waste.

University of Chicago did operate a container storage facility in Room 16 of George Herbert Jones Laboratory building. A closure plan has been submitted and accepted by Illinois EPA. The closure is expected to be completed by March, 1989, and a certification will be provided at that time.

L-1a Characterize the Solid Waste Management Unit:

L-2 Releases:

No documentation is available that would identify a non-regulated release to the environment from any facilities at University of Chicago. Requirements of paragraphs under L-2 do not apply.

M. RESEARCH, DEVELOPMENT AND DEMONSTRATION PERMITS RCRA  
3005(G)

University of Chicago facilities do not perform research, development or demonstration under RCRA 3005(G). Requirements of paragraphs under M do not apply.

ATTACHMENTS

The University of Chicago  
RCRA Part B Permit Application

Original Part A and Changes  
Facility Plan  
Maps  
Sample Analysis Sheets  
Contingency Plan  
Closure Plan  
Financial Assurance For Closure/Liability  
Waste Analysis Plan  
Facility Inspection for Lab Services Building  
Quality Assurance Plans  
Log Book Example  
Water Pressure Evaluation

1